

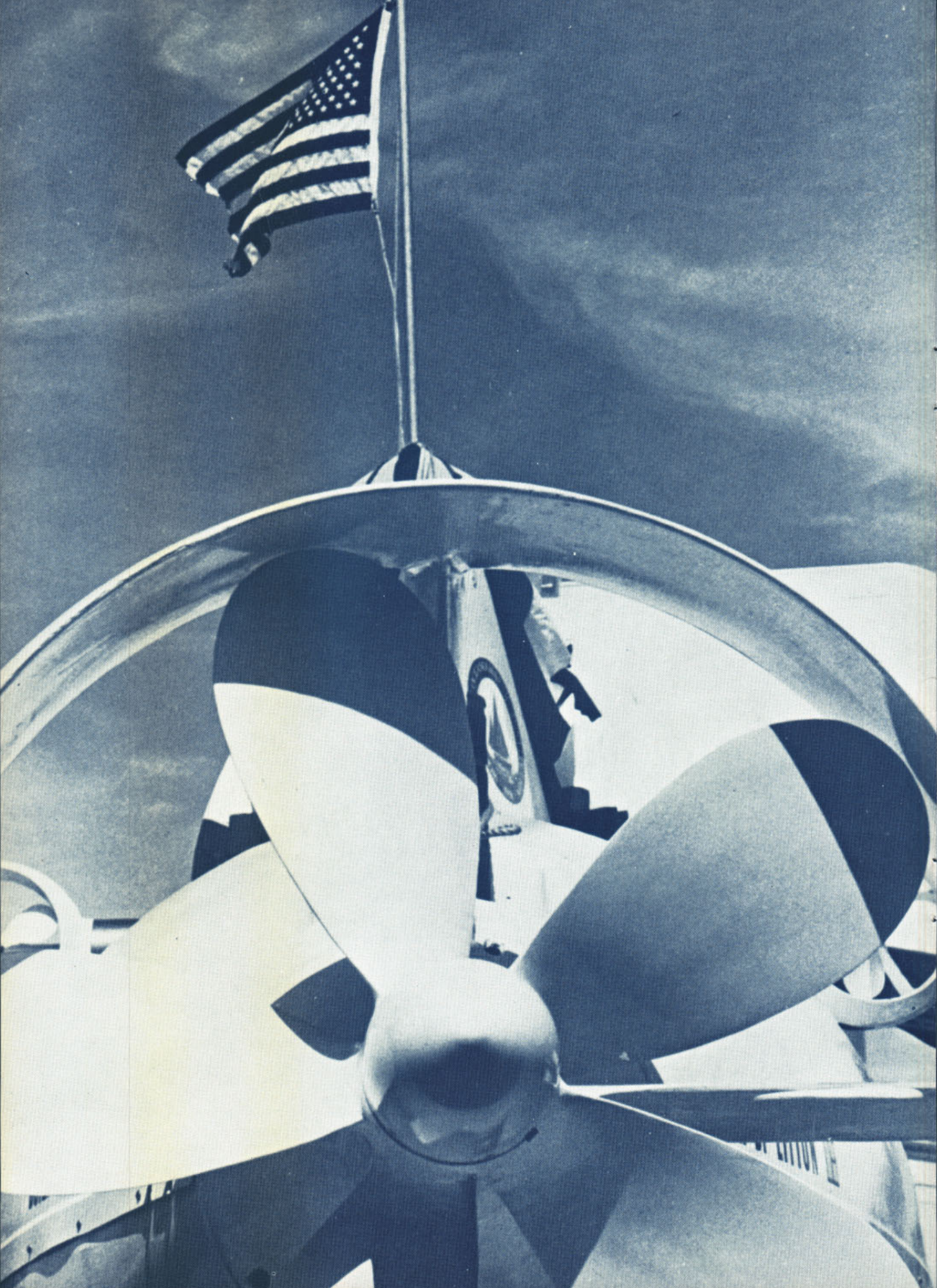
★ ALL HANDS ★

THE BUREAU OF NAVAL PERSONNEL CAREER PUBLICATION

in this issue:
NEW DEVELOPMENTS
on the **NAVY HORIZON**

This magazine is intended
for 10 readers. All should
see it as soon as possible.
PASS THIS COPY ALONG

FEBRUARY 1965





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ALL HANDS

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NUMBER 577

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● **FRONT COVER: WHAT'S AHEAD?**—Mysterious atmosphere around **Polaris** sub surfacing in a fog-shrouded sea is symbolic of the many new developments the Navy is researching in a continuing plan to improve the present and develop the new in equipment and concept.

● **AT LEFT: DEEP SUBJECT**—The Navy is seeking new developments in underwater vehicles capable of deep submergence for submarine rescue work and research to unlock the secrets of Davy Jones's locker. Here is the two-man sub *Alvin*, now on duty at Woods Hole Oceanographic Institute, where it will be used to conduct research down to 6000 feet.

● **CREDIT:** All photographs published in **ALL HANDS** Magazine are official Department of Defense photos unless otherwise designated.

Looking Beyond the

"BUILD A BETTER mousetrap," said a 19th century American, "and the world will beat a path to your door."

Even in the early days of the country's history, a man with Yankee ingenuity and perseverance had a fighting chance for fame and fortune. In the 1800s, many a man who was clever with his hands spent his time puttering in his workshop, and from such shops came the telephone, the steam turbine and the automobile.

These were great advances, but in those days advances came slowly. When one thought of the matter at all, it was only natural to refer to the slow, inexorable march of science and assume it would always be so. Mostly slow.

But most people failed to reckon with one fact: An idea propagates itself. Each step forward seemed to lead to two more. In 1917, when the Great War was being fought in Europe, major advances had begun to come more frequently; and by World War II breakthroughs in both pure and applied science were coming faster than anyone had ever dreamed possible.

Instead of using makeshift work-

shops inventors moved into multi-million dollar laboratories. Yankee ingenuity still counted, but the mousetrap was passé—radar, sonar, jet propulsion and nuclear power took its place. Since then, each year's contributions from the scientific community have exceeded those of the preceding year. The march of science has become a stampede.

The stampede has affected everyone: the housewife, the poet, the politician. It has changed the Navy, adding guided missiles, nuclear power and computers to the striking forces. Furthermore, the experts expect the progress to continue, even to increase in pace.

So how about next year? How about 1975? Clues exist in the Navy's major research and development projects underway today. Some you may have heard about, others not. Here are a few which seem to hold promise:

Advances in Nucleonics

THOUGH NUCLEAR power has been a reality for almost a generation, it is still in its pioneering phase. In this phase the Navy stands as a trail blazer. Everyone knows atomic energy is used to power many Navy ships, but even in the sea service

comparatively few people have seen the reactors, and even fewer work with atomic energy on a day-to-day basis. Outside the Navy's nuclear powered submarine program, cost effectiveness has been one of the primary considerations in the application of nuclear power to Navy ships.

During the past few years research in nuclear technology has progressed steadily toward atomic power plants which are promising from a fiscal as well as from a strategic and logistic point of view. During those years scientists sought reactors which would be cheaper, simpler, more compact and more powerful.

A New Nuclear Reactor

A NEW ADVANCE was recently announced by the President of the United States.

The President spoke of "... a new, high-powered, long-lived reactor which constitutes a major step forward in nuclear technology and will make nuclear power more attractive in the construction of aircraft carriers.

"Two of these reactors could power an aircraft carrier, as compared with eight reactors required for *USS Enterprise* and four considered for *John F. Kennedy*." The President went on to say the newly developed models would be available for installation in a carrier in 1968 or 1969.

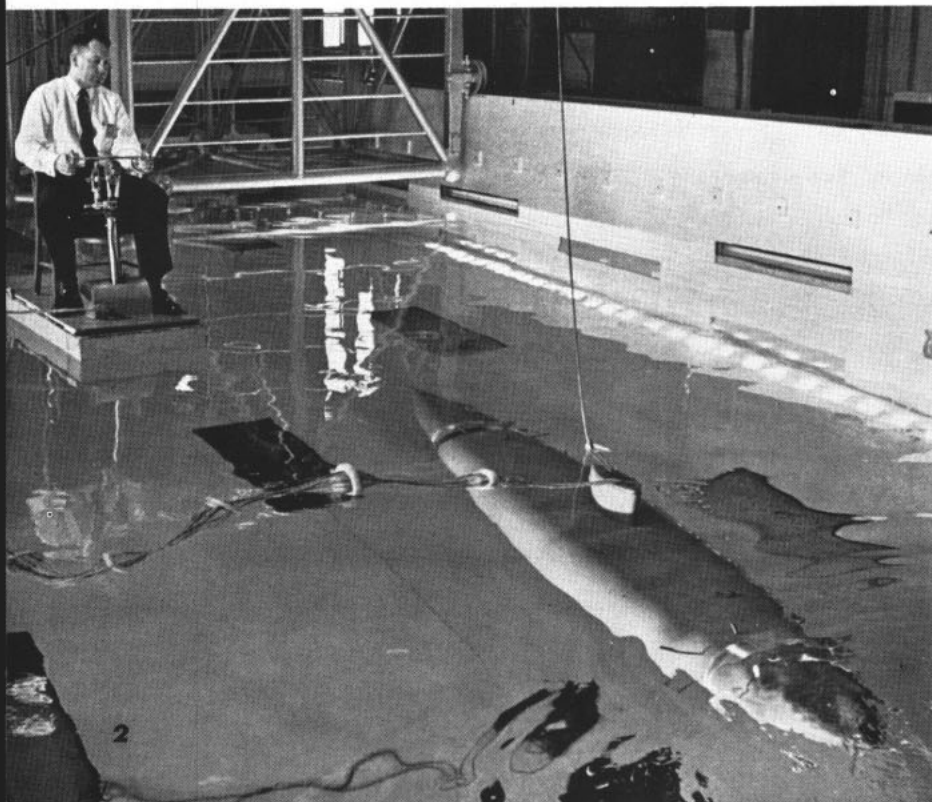
In addition to costing less, they will have almost double the fuel life: A carrier powered by the new plants would require refueling only once in the life of the ship.

Shortly after the President announced the development of the new nuclear reactor, the Department of Defense cited the successes of nuclear powered submarines. Since the first *Polaris* sub went to sea, none has been late in deployment, no patrol has been cut short, no vessel has returned prematurely from patrol and no communications message has been missed.

More Uses for Atom: SNAP

WHILE PROGRESS continues in reactor technology, scientists are seeking auxiliary uses for the atom. Already the Atomic Energy Commission has discovered ways to power lighthouses, buoys and data collection stations with waste materials from nuclear reactors.

NEW IDEA—Model of tandem prop sub is tested at David Taylor model basin.



Horizon

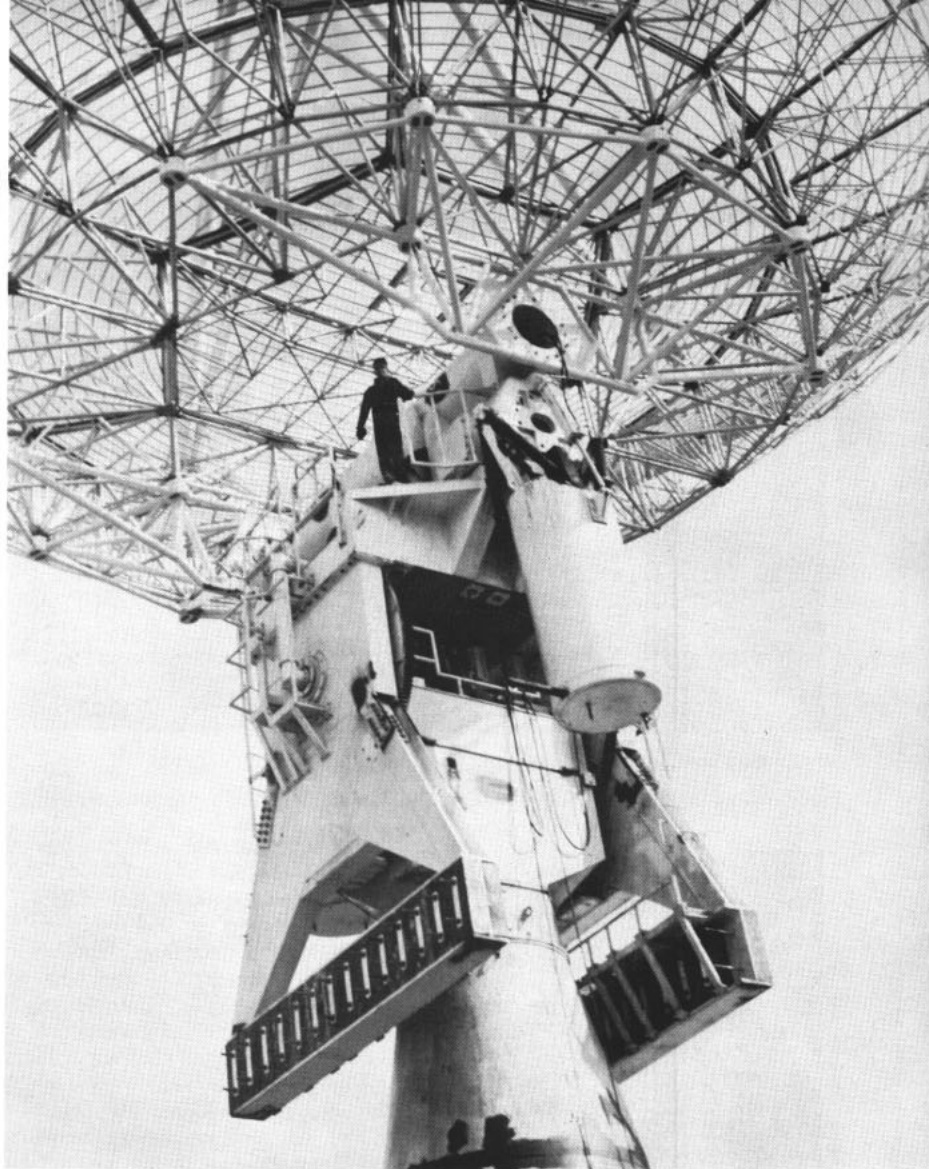
These AEC power plants are called Systems for Nuclear Auxiliary Power (SNAP). SNAP generators used on land or in the sea produce electricity from waste strontium 90, have no moving parts and can operate steadily from two to 10 maintenance-free years. They are said to be more reliable than the machinery and instruments they power.

SNAP generators have a number of possible applications, but are presently limited by their weight and the high cost of fuel processing—problems which the AEC is seeking to solve.

The fuel price is high because the refinement of strontium 90 must presently be done on a small scale and requires many man-hours. But, when an isotope production plant goes into operation in 1968, the fuel will be mass produced and the cost should drop to one-tenth its present price.

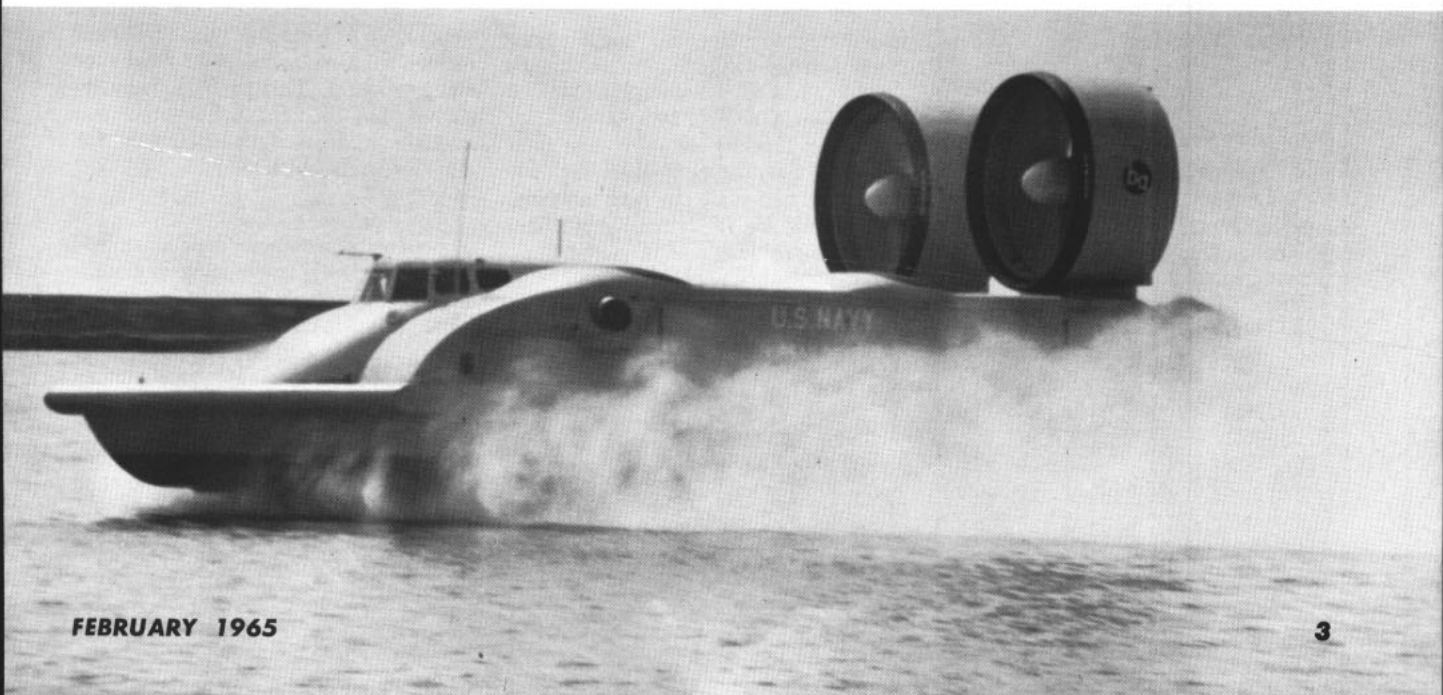
Weight problems are harder to solve, since strontium 90 requires heavy shielding, but some progress has been made. Through design and production changes engineers hope to reduce the weight of waste-fueled generators from 4600 pounds to 1000 pounds in the near future.

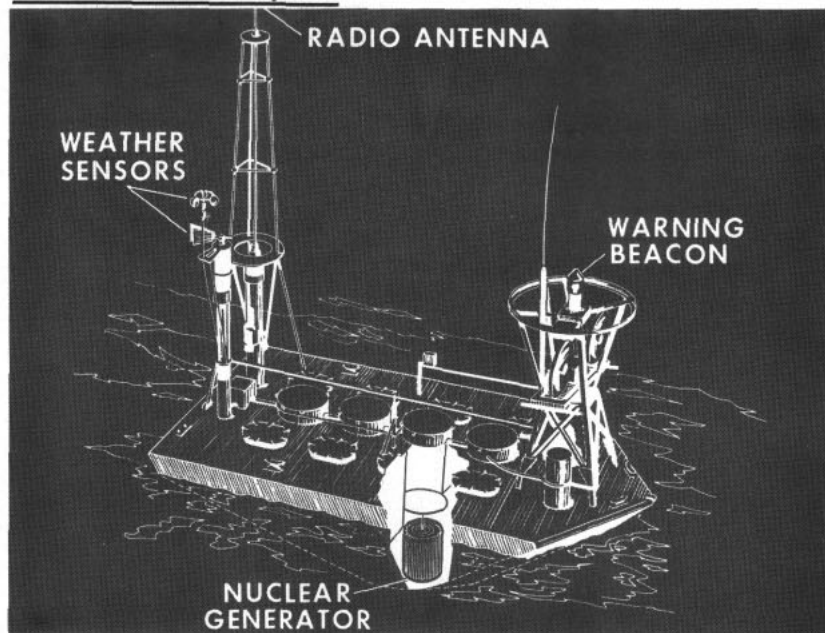
SNAP generators have also been used for space projects, though space generators must use virgin fuel (which requires less shielding than do waste products). The first appli-



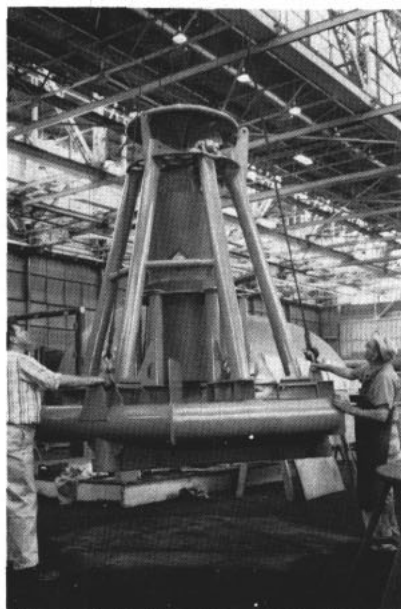
NAVIGATION AID—New Navy Navigation Satellite System Antenna, in Minnesota, will permit ships to get exact locations through navigation satellite.

ON AIR—Hydroskimmer, SKMR-1, is a test craft the Navy is using to study future application of the GEM idea.





REAL SNAPPY—Unmanned weather station in Gulf and undersea sounding device are products of the SNAP program using strontium to produce electricity.



cation of nuclear power in space was a SNAP generator on a Navy satellite launched in 1961.

Oceanography: Booming Business

THE STUDY of the sea is evolving into the most practical of pursuits. Oceanographers are putting their knowledge to use through oceanographic engineering, a field which will bear watching in the next decade.

The advent of oceanographic engineering is difficult to pin down, but Navy interest picked up considerably in 1962, and in 1963 the Secretary of the Navy formed the

Deep Submergence Systems Review Group (DSSRG). The Group, composed of outstanding authorities in the oceanographic and engineering fields, was to determine whether or not their respective areas had developed to a point when it would be feasible to try for a deep sea recovery and engineering capability.

For several months members of the group pondered the question, talked with other experts over the world, and called in consultants from industry. By early 1964 they were ready with an answer: Yes. The Navy could operate in the deep sea, and the DSSRG report explained how it could be done.

Undersea engineering projects, the experts reported, could not be conducted from the surface. Although dredges, towed machinery and robot mechanisms were satisfactory for gathering random samples and data they could not be controlled with the accuracy necessary for engineering. That would be, by necessity, a man's job. The problem was to enable men to work on the ocean's floor.

Deep Sea Vehicles

CONSEQUENTLY, along with the group's affirmative answer to the question of deep-sea development, designs were submitted for two vehicles which could dive to 20,000 feet. With such a depth capability the craft would be able to reach over 90 per cent of the ocean's floor.

One of these miniature submarines

would be a search craft, equipped with searchlights, magnetic detection gear and sonar. It would carry a crew of two men and would be used to locate sunken objects and pave the way for the second submersible, the engineering vehicle.

The work craft, as the second vehicle is called, would be equipped with manipulators similar to those used by physicists to work with highly radioactive material. With these manipulators the two men inside the craft could do anything a diver could do at lesser depths. Together, the two submersibles could be used for either salvage or construction.

When DSSRG was created the Navy was already at work on the unrelated *Alvin* project. *Alvin*, a research craft, is remarkably similar to those vehicles proposed by DSSRG, but will be limited to 6000 feet from the surface. *Alvin* was launched in 1964 and will be used to investigate the continental shelves.

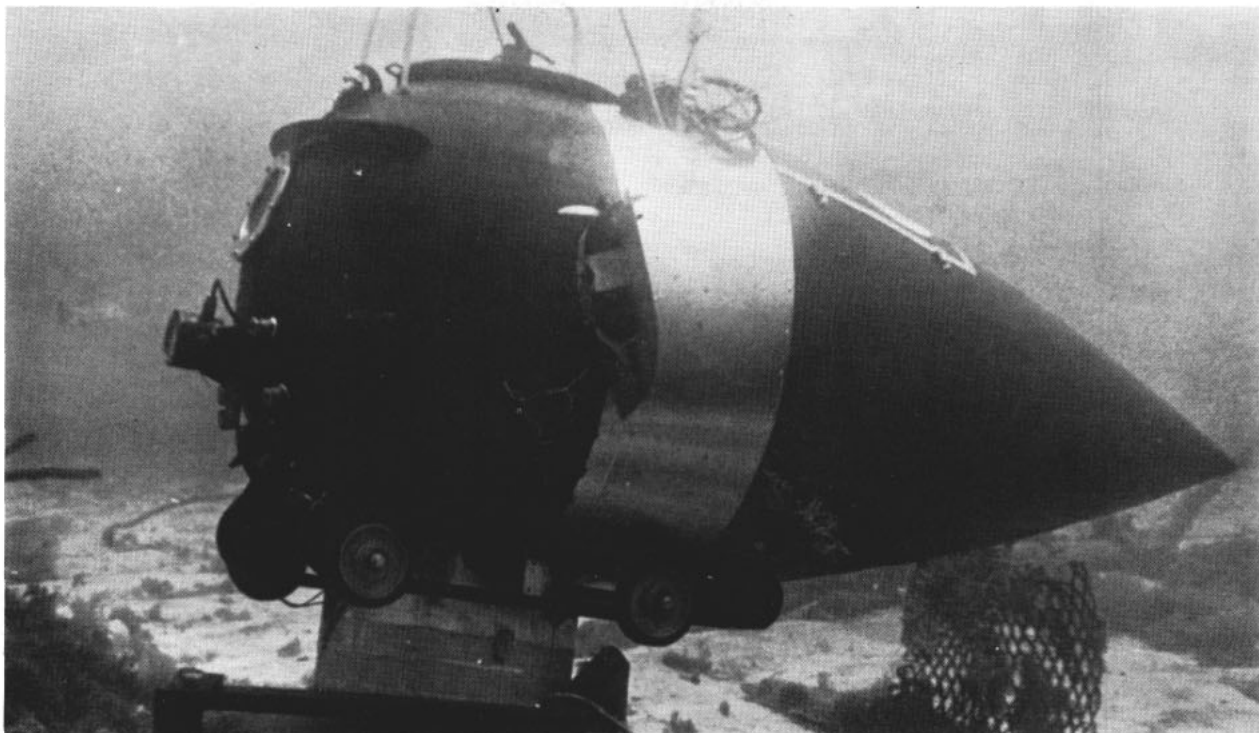
Since the publication of the DSSRG report the Bureau of Ships has begun working on designs for a deep-submergence vehicle with an 18,000 foot capability. Like *Alvin*, it will be a teardrop-shaped vessel, but its pressure sphere will be constructed either of titanium (which will withstand 110,000 pounds of pressure per square inch) or a specially aged steel with a 160,000 psi capability.

Although neither of these vessels will have direct operational possibilities for the Fleet, development of deep-diving research and engineering vehicles will undoubtedly lead to the development of better Navy subs.

The tremendous pressures at great depths, for instance, have always limited large submarines to relatively shallow water. This problem may be solved by the engineers who are seeking high-strength materials for the research subs.

Sealab

SEALAB is another oceanographic project with fascinating possibilities for the future. *Sealab*, a submersible living area designed to enable divers to live near their work, may be the forerunner of future cities under the sea. *Sealab's* designers were trying to eliminate daily time-consuming decompression periods and considerably increase the time a diver could remain on the bottom. It looks as though they may have succeeded in this effort.



WEE ONE—Research sub *Star 1* sits on simulated hatch, showing how it could be airlifted to find sunken submarine.

Last July the *Sealab* was lowered to a depth of about 200 feet some 26 miles off the southwest coast of Bermuda (See ALL HANDS, October 1964). For 10 days four Navy divers lived on a helium-oxygen atmosphere, entirely underwater, living in comfortable quarters under a pressure equal to that of the surrounding sea. They entered the water through an open port in the deck, and embarked on many exploring and minor engineering expeditions.

The Navy intends to continue with a more extensive series of deeper and longer manned expeditions in the near future. With the Man in the Sea program (which evolved from the *Sealab* project) the Navy hopes to develop a capability for long duration work at 600 feet without any additional breakthroughs. Hopefully, *Sealab* installations as deep as 1000 feet might be possible.

Construction frogmen of the future may live in similar undersea quarters while completing their jobs. Because they would not require the costly full-time support of a ship nor waste time decompressing after each trip, undersea engineering would become more feasible from an economic standpoint. *Sealab* may lead to underwater mining operations, undersea defense installations and cities on the ocean bottom.

The science-fiction people knew

it as far back as Jules Verne.

ASWEPS

ASWEPS is a project which will probably be of more immediate concern to the operating forces, particularly those involved in antisubmarine warfare. ASWEPS, standing for Antisubmarine Warfare Environmental Prediction Systems, is a scheme to predict oceanographic conditions much as meteorologists predict future conditions in the atmosphere.

It should be of great value to HUK operations, since sea conditions (temperature and salinity variations) affect the operation of sonar. Sonar operators could furnish much more reliable information, for instance, if they knew the exact conditions of the sea at the time of their search.

Sub commanders could also use the predicting service. In ocean areas where a sudden drop in temperature exists between two layers of water, submarine detection is next to impossible. A friendly sub skipper seeking to evade the enemy could use the underwater "weather" prediction to locate such a hiding place.

Under the ASWEPS system, information on current sea conditions would be gathered world wide by all possible methods, including buoys, aircraft, and ships which would trail undersea sensors as they went about their jobs. The information

would be compiled and oceanographers would then make their predictions.

However, before oceanographers can predict future conditions or even analyze those of the present, they must understand the natural laws which cause constant change in the sea. In other words the future of ASWEPS—and other important projects—depends entirely upon better understanding of the ocean.

An Oceanographic Fleet

SO THE QUEST for naval supremacy on and beneath the sea has led to an unprecedented search for information. The science of oceanography, as said before, is booming and Data, with a capital D, is king.

Much of the necessary data is being collected by the Navy's oceanographic ships. There are, at present, 30 Navy or Navy-sponsored oceanographic research ships either in operation or under construction. Unmanned ocean data stations or telemetering stations are also being used. A number of them are already in operation and new ones, some of which can go for a year or more without maintenance are being launched.

Oceanographic ships and ocean data stations combined, however, do not meet the Navy's requirements for information on the sea. To speed things up a little the Navy has plans

FROM GLIDING SHIPS TO GLASS SUBS

to institute a new project called Research Ships of Opportunity.

The program, which is just beginning to take shape, calls for van-type portable oceanographic laboratories to be carried aboard merchant ships. While the ships continue to ply their normal trade routes, a team of oceanographers will be busy collecting information. The first such trip has just been completed.

When enough information has been compiled and studied, the big picture will emerge. So will ASWEPS, advanced sonar, deeper subs, and a greater undersea engineering capability.

New Ships

WHILE ONE GROUP of engineers is seeking to build craft capable of diving to the greatest depths, still another group is continuing the search for an operational vehicle which will skim over the surface at high speeds. The most noteworthy projects in this category are the hydrofoils and the ground effects machines (GEM).

Of the two, hydrofoils seem the more promising for naval applications in the foreseeable future and at least one hydrofoil, a landing craft, is in the final stages of development.

Two amphibious landing craft, called LVH, have been constructed and are presently undergoing tests. They are some 38 feet long, can carry 16 and one-half tons, and can travel faster than 35 mph. True amphibians, they retract their hydrofoils as they near the beach, then wheels take over, enabling the pilot to move them right onto the beach. When introduced into the Fleet, they will be good news to the Marines—the new boats will be hard-to-hit targets when compared to the much slower landing craft in use today.

To date, experiments with hydrofoils have been confined mostly to boats meant for inshore use. But construction recently began on a 300-ton hydrofoil research ship. AGEH 1, to be named *Plainview*, will be a true seagoing hydrofoil capable of crossing the ocean.

Plainview will be powered by gas turbine engines, which are much lighter than other types. When launched she will be capable of reaching speeds of about 40 knots, and when super-cavitating foils are developed, her speed may reach 70 or more knots.

The cavitation problem is present-



END RESULT—Many of Navy's new developments are in new ships such as *Edward McDonnell* with the latest ASW gear and FBM sub *Benjamin Franklin*.

ly the biggest stumbling block to operational high-speed boats. The foils are designed to operate with a smooth flow of water around top and bottom; as the speed through the water increases, pressure on the upper foil surface decreases, producing lift much like that on the wing of an aircraft. The problem is, when speed reaches a certain point a vapor cavity forms on the upper surface, causing a drastic reduction in lift.

The fastest ship operated by the Navy, *Fresh I*, is being used in the development of a super-cavitating hydrofoil. *Fresh I* has been in operation since 1963 and can, theoretically, reach speeds of 115 mph.

GEM and SKMR

ATHOUGH the search for hydrofoil applications continues, engineers at BuShips are inclined to be skeptical about the possibility of very large operational hydrofoil craft in the near future. The engineering problems inherent in lifting a 10,000-ton ship from the water by means of hydrofoils seem, at present, to be insurmountable.

In addition to experimenting with hydrofoils, BuShips is proceeding with the GEM (ground effects machine) projects. GEM vehicles skim over the surface on a cushion of air provided by large ducted fans. The flow of air forcing its way between the water (or any surface) and the hull of the craft keeps it airborne.

Hydroskimmers still are in the



early stage of development, and although there is one experimental prototype—SKMR 1—naval experts aren't yet sure how the finished product may be used. Use as a high-speed landing craft would be interesting, since SKMR 1 can operate with equal ease on land or sea, but its possible applications as an ASW platform also show promise.

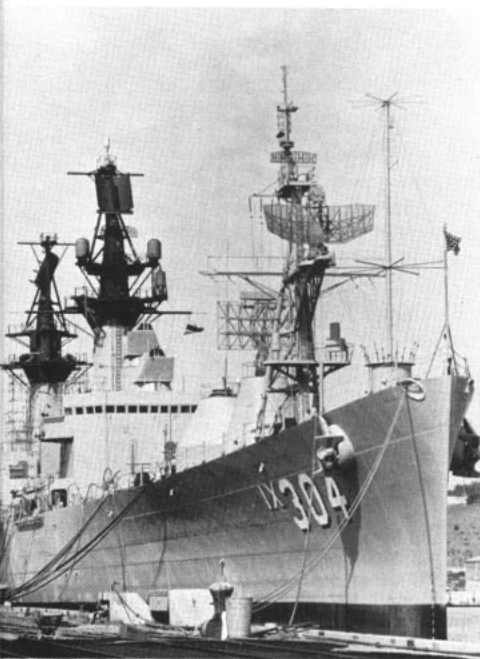
Glass Submarines

RESearch scientists recently discovered that glass may be stronger than steel at great depths. Ordinary glass can withstand from 5000 to 10,000 psi, but scientists at the Naval Ordnance Laboratory have found a type of high-silicate glass which can be made to withstand up to 100,000 psi.

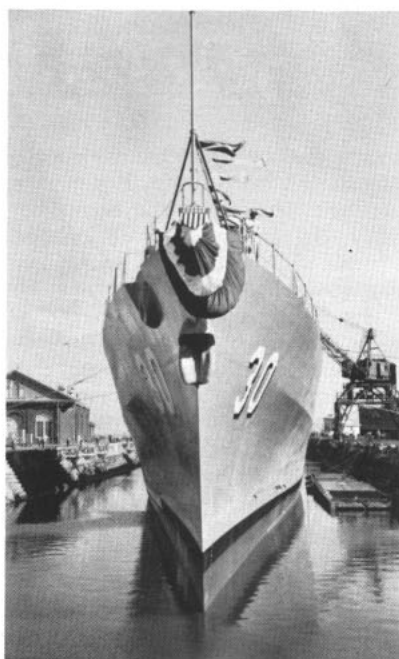
Small hollow spheres of the special glass were lowered 21,000 feet into the Puerto Rico trench, where pressure is 9300 psi, and subjected to the shock waves from a nearby underwater explosion. The glass spheres were recovered intact.

The glass is non-yielding, lightweight, and will probably prove to be less expensive than metal. In addition, when high strength steel is subjected to high pressures it loses strength. The glass, on the other hand, gains strength under high pressures—the glass spheres were five times as strong at 21,000 feet as they were on the surface. (For more on this subject, see page 8).

Evaluation of the new glass is still



EX-CRUISER USS *Atlanta* has deck full of masts and antennas to be blast-tested. Rt: New ships like *Horne* (DLG 30) will be better able to perform mission.



in the very early stages, and glass subs will not become a reality for a long time, if ever. But if glass doesn't work, the engineers will discover something which does.

Tandem Prop Sub

ANOTHER PROJECT which may affect ships of the future is the tandem-propeller submarine, a design of CDR F. R. Haselton of ONR. The tandem prop ship is a highly maneuverable sub which does not use diving planes, rudders or standard screws. A model is presently undergoing tests by the Navy and, if the reports continue to look good, the tandem prop may someday make conventional screw-driven subs obsolete.

The model is powered by two rotating, blade-studded rings which wrap around the hull near the bow and stern. The blades are individually adjustable so the craft will be highly maneuverable, even when it is dead in the water. Present-day subs (and surface ships) have a minimum of control at very low speed.

Flying Submarines?

IN THE SEARCH for new and better ships, engineers are keeping one eye on the far future, which may not be as far away as it seems. These someday-type brainstormings may seem a little farfetched today, but remember—15 years ago an atomic sub capable of firing a missile from beneath the sea seemed a little weird, too.

Early this year Navy officials asked U. S. industry to study the feasibility of a flying submarine—or submersible airplane, take your choice. Though they agreed the idea sounded futuristic, they were not at all red-faced about the suggestion. A quest for a flying submarine is simply another long-range program to prepare for the future. Other ideas which have been considered by BuShips and ONR include several submersible landing craft which could assault a beach undetected, and several new ASW craft, including one which has a draft of 160 feet in order to get a sonar transducer down deep in the ocean.

BuShips is also building a submarine of relatively conventional design which will dive deeper than any now in operation. *Dolphin* (AGSS 555) will collect data needed to design the deep-diving operational submarine of the future. *Dolphin*, when completed, will aid in the development of new hull structures and contribute to existing knowledge on the operations of sonar and weapons systems at depths far deeper than presently attained.

Automatic Landings on Carriers

THE FLYING NAVY has been making great strides in the development of new aircraft, systems and concepts—and the trend is expected to continue. And though tomorrow's aircraft carriers will probably not look strikingly different from the *Forrestal*

class flattops of today, their gear, aircraft and operating capabilities will look far different indeed.

Much time and effort has been spent pondering the problem of landing a high-speed aircraft aboard a carrier. The higher an aircraft's top speed, the higher the stall speed: Consequently, high-performance aircraft must approach the carrier too fast to leave room for human error. Experts have become seriously concerned as faster aircraft were phased into the Fleet.

There are two possible solutions; one only recently introduced into the Fleet and the other entering the final stages of development.

The operational solution is the SPN-10 automatic landing system. Using SPN-10 pilots can land aboard carriers without touching the controls during the final approach. The new system, completely automatic, makes carrier landings for high-speed jets much safer, particularly during rough seas. Almost regardless of the weather conditions the SPN-10, featuring a shipboard computer which radios instructions to an automatic pilot in the plane, can land a jet within five feet of the centerline and ten feet of the desired touchdown point. And all this without the pilot touching the controls.

SPN-10 will undoubtedly boost the carrier forces' capabilities, as pilots can be launched and recovered in rougher weather. Also, because machines make far fewer errors than men, carrier landings are safer.

Tests for New Aircraft

THE SECOND SOLUTION to the problem is the F-111B, the Navy's version of the TFX. Testing of the new plane will begin this year when the first model rolls off the production lines.

The F-111B is a two-man fighter powered by two turbo-jet engines. It will fly at two and one-half times the speed of sound yet, with its wings extended, will land at slower speeds than some present-day aircraft—good news for pilots who will bring her aboard ship.

The F-111B will carry the new guided missile *Phoenix*. Most data concerning the *Phoenix* air-to-air missile is classified, but it's generally understood that the new weapon is far superior to those now in existence.

Another new plane, the A7A, will soon begin to replace the A-4E *Sky-*
(Continued on page 12)

Here's More About That Glass

MANY A SUBMARINER on a long underwater cruise has wished the view included something more than pipes and bulkheads. Seeing beyond the hull, however, has been denied to sub-surface sailors unless they navigate in one of the Navy's underwater research vessels equipped with ports.

This may not always be the case. Every Navyman who ever sub-navigated, and many a surface sailor too, will be interested to know the Navy is investigating the possibility of glass as a replacement for metal in underwater boats.

Lest anyone conjure a vision of a fragile sub-surface craft, we hasten to say that a glass submarine or research vessel, when and if it comes, will be tough and rugged. It may be transparent but, unless further research turns up now undisclosed weaknesses, it will serve its purpose very well indeed.

Everyone who works with fibers

knows glass has tremendous strength, especially when used with a binding material such as plastic or rubber. Solid glass is also strong. A glass capsule, for example, remains undamaged when subjected to pressures that would crumple a steel hull of equal weight. Indeed, glass becomes more compact under pressure, hence more rigid.

Unlike soft dense materials (such as steel), glass is strong and light. A glass hull bobs to the surface under conditions that would make a steel hull sink.

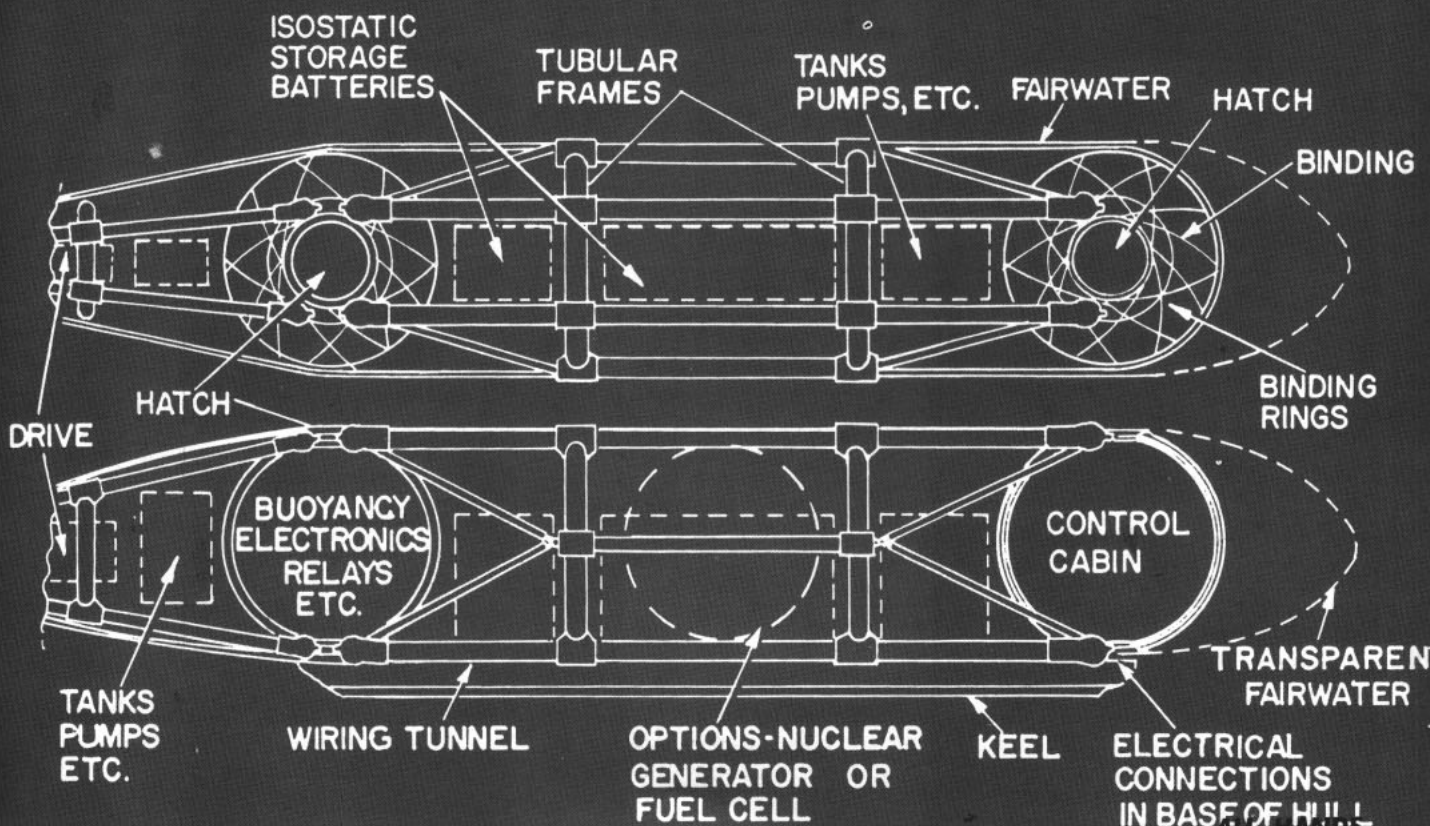
Glass is chemically stable, too. This means, among other things, that it won't rust. This suggests interesting possibilities.

It is, in fact, so strong, buoyant and chemically stable, that hollow glass bubbles cast up by erupting volcanoes have survived the cataclysm intact, and preserved their interior vacuum until they were broken in laboratory tests.

THERE'S NO DOUBT about it, glass has many good qualities—but everyone who has thrown a baseball through a windowpane knows the pane shatters into a hundred pieces. When a stone or a ball hits a car windshield, however, the glass cracks but doesn't shatter. This is because the car windshield has been treated to resist sudden shock. A layer of tough plastic has been added.

An underwater explosion, if it were near enough, or a collision, could have the effect on a glass underwater boat comparable to that of a baseball on a windowpane. Although a glass sphere is an excellent material and shape for withstanding the tremendous pressure of the sea, a shock wave will travel around the sphere and, if the shock is strong enough, will fracture the sphere from the opposite side. To prevent fracture from explosion and collision, researchers envision sandwiching glass between fracture-tough plastic or rubber.

ON THE BOARDS—Plans show a possible bottom work boat using two glass spheres united by glass tube frames.



Submarine

ANOTHER APPROACH has been to use glass in the shape of donuts, cylinders, spheres and other rounded shapes, whose walls are sandwiched between plastic layers. These are held in a mesh cage-like device which produces compression in the glass. This, researchers have found, prevents cracks from spreading if they occur. Also the cage would be handy for making attachments.

The ability of glass to bend without breaking has also been increased by using heat and chemicals to pre-compress the surface, making it more difficult for cracks to get started.

The Naval Ordnance Laboratory at White Oak, Md., began seriously testing glass for use in deep submergence vehicles in March 1964 when several of its glass specialists went to the Caribbean on board USNS *J. M. Gillis* (T-AGOR 4).

When the *Gillis* fathometer told the NOL men they were over the Puerto Rico Trench, they stopped and lowered 95 hollow glass spheres one by one to different depths.

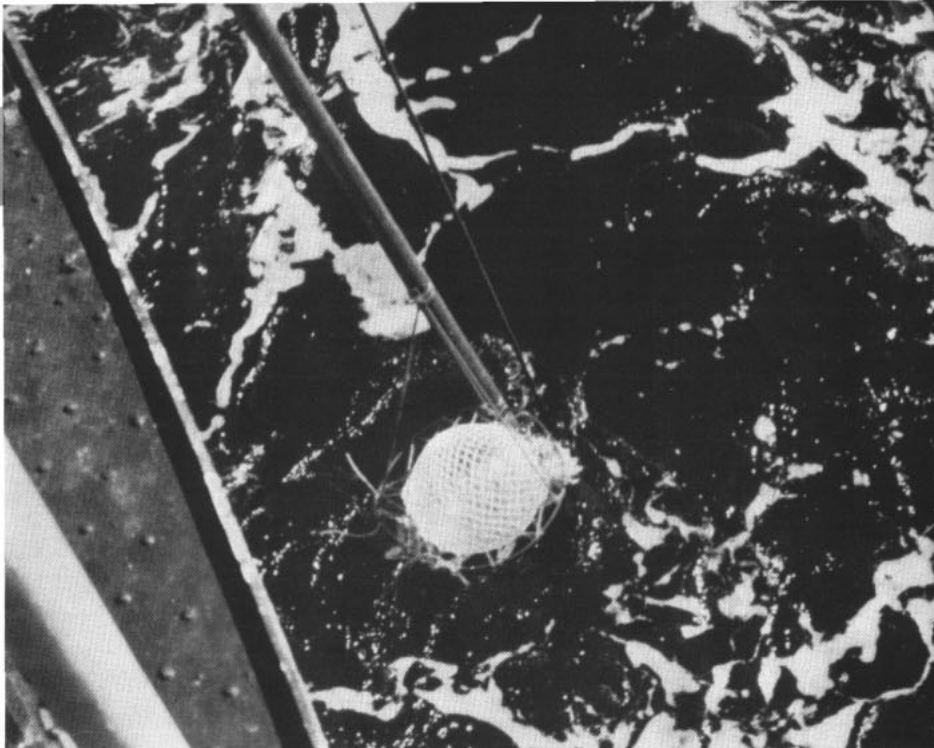
The NOL men placed one-pound pentolite explosive charges one by one on the racks which held the spheres and detonated the charges at depths of 300, 7000, 14,000 and 22,000 feet.

The pentolite was detonated by a hydrostat. In successive tests each explosion was set a little closer than the last until the globe collapsed in the shock wave.

The tests proved what had been suspected before—that the spheres not only resisted sea pressure very well at great depths but also became more resistant to shock waves the deeper they went.

THE NOL TEAM returned to the Puerto Rico Trench in June 1964 with a more sophisticated version of the first glass spheres. This time, they had included hatches and a lead-in for electrical connectors. They also used shapes other than spheres.

Again the models were subjected to underwater explosions to determine critical distances and the amount of shock pressure they could take. The resistance of these models to shock waves increased with depth just as the less complicated spheres had in the first phase of testing.



TEST VESSEL enters sea, where explosion will test strength at various depths.

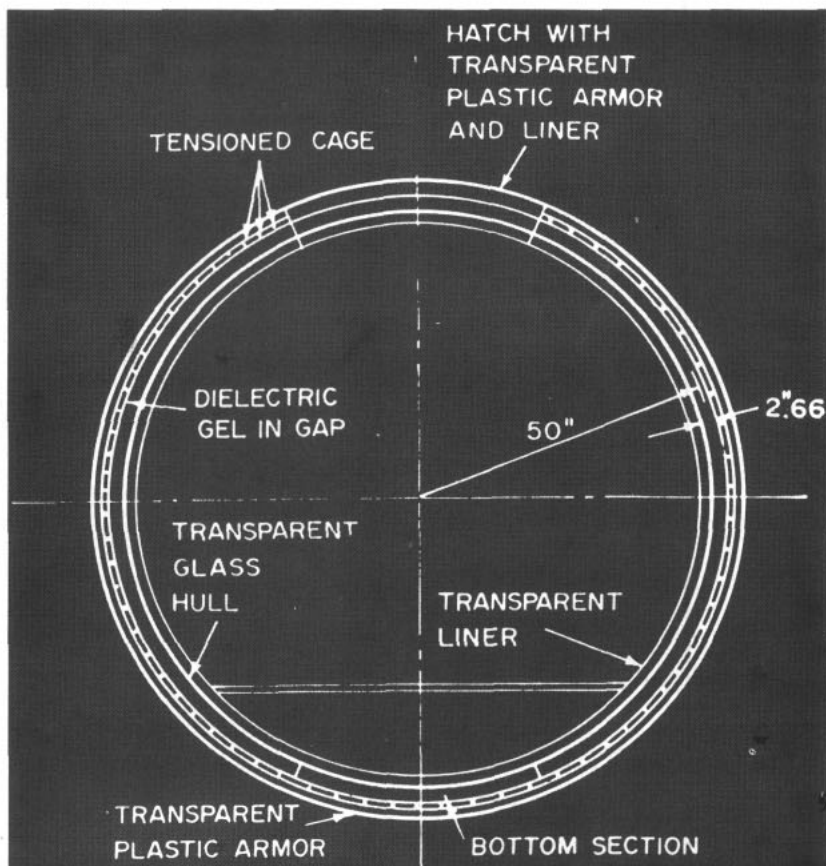
In the second series of tests, NOL men also tested their theory that a plastic skin covering the glass would appreciably increase resistance to shock waves.

The results were gratifying. A simple sphere coated with plastic only one-eighth of an inch thick resisted shock waves twice as well

as an uncoated sphere they found.

A glass deep-submerged boat would probably consist of several spheres held together by a framework of hollow ribs. The glass capsules would be much more buoyant than metal capsules designed for the same depth, and the glass boat's speed, endurance, search capability

HERE'S HOW glass walls of compartment will be reinforced for strength.





TOUGH TEST—Glass sphere is secured on carriage for a trip into the sea.

and work capacity would be far greater.

The framework of ribbing would be covered by a material which would house the boat's machinery, most (or all) of which would be outside the spheres.

Other glass spheres would be added as needed within the frame to provide the boat with stability and buoyancy. The boat also might have an inflatable and transparent bow to improve the flow of water while on the surface.

Work arms (for picking up items from the sea) and lights could be

added—probably to the vessel's exterior framework, rather than to any of the glass spheres. The arms, like the framework, would also be made of buoyant tubular material.

THE MEN in the boat would be in a glass cabin which would probably have a plastic liner to which interior fittings would be attached. The liner would also serve as an interior protection for the transparent glass hull which would bear the pressure load. The cabin could be cut loose and would bob to the surface in an emergency.

GLASS MENAGERIE—Crew readies spheres and cylinders for Gillis tests.



Surrounding the glass inside the outer plastic jacket would be a protective gelatin which would serve to insulate the wires and circuits from the sea and to help shield the glass from sudden shock. The gelatin might also tend to seal small leaks in the joints should they occur.

The gel would surround a tension-producing cage which would be covered with a transparent armor. The nonmetallic walls would keep out the cold of the sea.

If a layered plastic and glass underwater boat ever becomes a reality, it would probably offer a wide-angle view of the surrounding sea which would be difficult to equal with the small viewing ports in a more conventional vessel. Since the man steering the boat could see what is outside and around him, an electronic blackout would be less perilous than in a conventional boat. If seated amidships in a spherical capsule, his perspective would not be warped as by a flat viewpoint.

The ability to see through glass and inspect the condition of the hull is also a factor which gives a transparent vehicle an advantage over one you can't see through.

From an industrial standpoint, there is no doubt that glass boats could be built within the near future.

Studies have shown that there is sufficient capacity for melting glass in large enough quantities to produce a fleet of glass boats. However, facilities for finishing and treating large structural parts are non-existent at present, simply because the need does not exist. This can be remedied when the need is established.

SO FAR, the investigations conducted by NOL lead it to believe that glass can be used for deep submergence craft.

This year, however, NOL men will again travel to the Puerto Rico Trench to evaluate other designs and materials. They will also try to debunk their own theories on the feasibility of using glass for underwater boats.

If the theories survive the assaults made upon them, NOL's total knowledge on the subject will be poured into building glass structures big enough for man's underwater use.

After all is said and done and glass is found to be a truly practical material for underwater boats and other construction, a whole new frontier may be opened.

—Robert Neil

ALL HANDS



Spar Stands on Her Stern

ONE OF THE most unusual vessels ever to join the Navy recently took her first dip. SPAR (Seagoing Platform for Acoustics Research) of the Naval Ordnance Laboratory, White Oak, Md., was towed to sea trials in waters off Mayport, Fla.

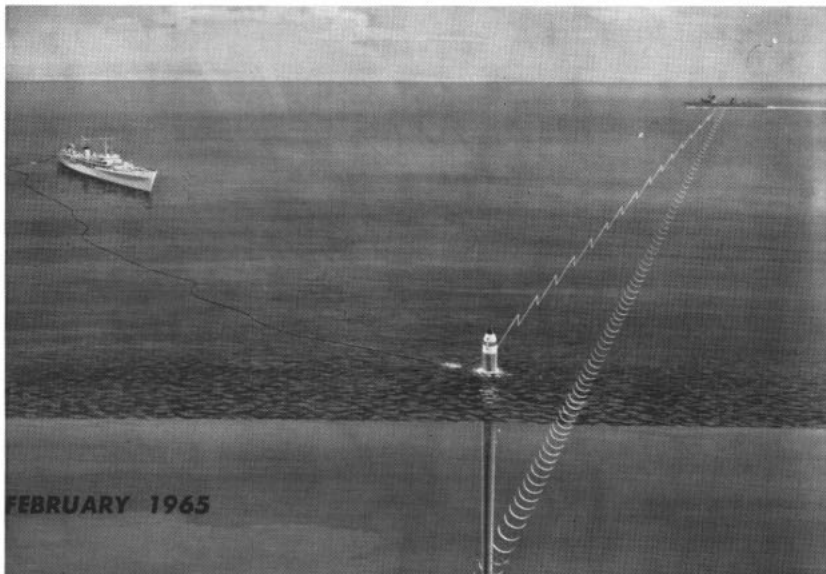
On station the 354-foot unmanned vessel was upended by taking on ballast. She maintained stability by shifting salt water between ballast tanks.

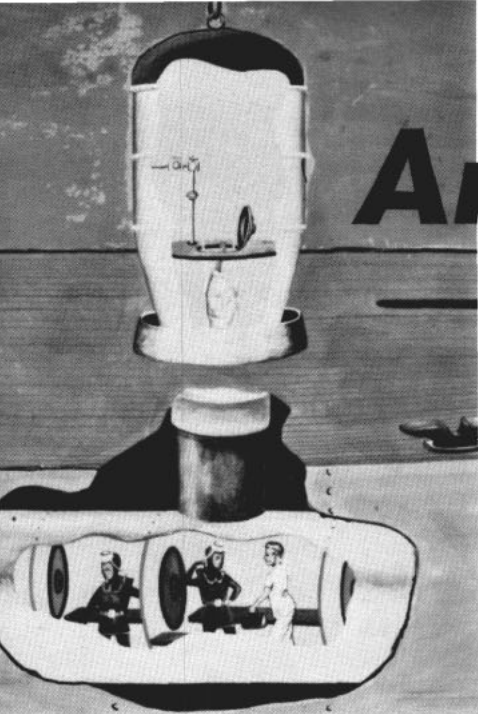
In her vertical attitude SPAR is stable in rough water with a maximum heave velocity of one fps in sea state four (five to eight-foot waves), with approximately 302 feet of her cigar shape under water.

When in operation the research vessel will receive power and control by electrical cables from a tender, and another ship will act as a target, transmitting electromagnetic and acoustic signals to be received by SPAR and relayed to the tending ship for storage and preliminary analysis. A detailed analysis will be made later.

The research vessel is being outfitted and is expected to be operational this summer.

SPAR is shown in photos shifting from horizontal to vertical position. Artist's concept shows how vessel will operate with tender and target ship to study underwater acoustics.





PROPOSED deep submergence rescue craft would be able to descend 6000 ft., attach to sub's decompression chamber.

(Continued from Page 7)

hawk, presently one of the main attack aircraft of the carrier forces. The new plane, called VAL, closely resembles the F-8E *Crusader*, a fighter and photo reconnaissance aircraft.

VAL will have a much greater payload than the *Skyhawk*, and twice the range.

Life-Saving Transmitter

IF THE NAVY is hard at work trying to push pilots through the air faster and higher, it's also going to great lengths to insure their safety should something go wrong. One project now underway is the development of a tiny radio transmitter which would supply the airman's position should he be forced down ashore or afloat.

The transmitter in question can fit into a pocket of a Mae West, and the airman would only have to pull a cord to go on the air. Once activated, the transmitter would send out 30 beeps per minute and could be picked up by standard radio direction-finding gear. It will save many lives, particularly when pilots are forced down in cold water and life expectancy is only a few hours . . . or minutes.

The tiny transmitter has been airborne before—it was developed to attach to pigeons during studies of the bird's remarkable homing abilities.

And What Else Is

The Exoskeleton

IT'S INEVITABLE that the Navy's brainstormers should come up with some projects which do not fit neatly into specific categories. Where, for example, would you place Man Amplifier?

Man Amplifier is based upon the premise that the human animal, though equipped with the opposable thumb and powers of reasoning, could use some improvement in the biceps category. This assumption is borne out by the inability of the average seaman to uproot trees or rip through bulkheads barehanded.

Man Amplifier is still highly experimental. Hopefully, the finished product will be a powered *exoskeleton* which will fit over a man's body. This skeleton would not inhibit freedom of movement, and when the man moved the skeleton would move also—but with far more force. This would allow him to do heavier work than he is physically equipped to do. So far, only an unpowered version has been built, but a powered one should be constructed sometime in the future. The first power models will probably be connected to the power source by an umbilical cable but, since the exoskeleton would take the weight with no trouble, the power source may be attached to

DOUBLE HEADER—New fire-fighting system uses light water and purple K sprayed from double-barreled hose.



the machine in later designs.

Great news for the 97-pound weakling, but it'll take some getting used to.

Purple K Powder, Light Water

A NEW FIREFIGHTING METHOD developed by ONR is perhaps a more down to earth development. The new technique, which uses dry powder and a "light water" compound sprayed from a twin nozzle system, will extinguish some types of fires in half the time required by conventional methods.

The new method is especially successful when used to combat gasoline, oil and other fuel fires. Tests showed that one man, using the dual-nozzle arrangement can permanently extinguish an obstacle-strewn gasoline fire, covering 400 square feet, in just 25 seconds. Neither of the two agents, even in double quantities, work as well singly as they do in combination.

One of the ingredients, purple K powder, extinguishes the fire while the second, called light water, floats on the fuel, cooling it and preventing re-ignition.

Because its greatest effectiveness is in combating fuel fires, the new method will first be used at Naval Air Stations. NAS Pensacola, Fla., was the first station to use it.

Electronics

THROUGH ELECTRONICS we have learned to bounce messages off the moon, relay TV pictures via satellite, build huge electronic computers and contrive a radar which will see around corners.

That's all very well, but the gadgets have their problem. Complexity, for instance.

Quite a few years' ago, many people figured a two-way radio was a complicated piece of machinery. Nevertheless, any intelligent human being could learn to understand the gadget, given time and training. But then someone invented a better radio.

The second radio did work better, but it was also more complex, and when it went on the blink there were more parts to check. Still no problem, though the better radio took more man-hours to maintain.

Trouble was, electronics continued to improve—and to grow. Today

New?

when a machine malfunctions, a technician may have to isolate a bad part from several thousand good ones. Still no *great* problem, but the Navy is becoming hard-pressed for men who can understand and repair the gear. Theoretically, at some point in the future the situation could become absolutely ridiculous.

It won't though, mainly because of the advances in a new field called microelectronics.

Microelectronics

USING A SPECIAL process, electronic components can now be "printed" on film or "grown" on crystals no more than 1/1000th of an inch thick. With such circuits a two-way radio can be constructed no larger than the eraser on a pencil.

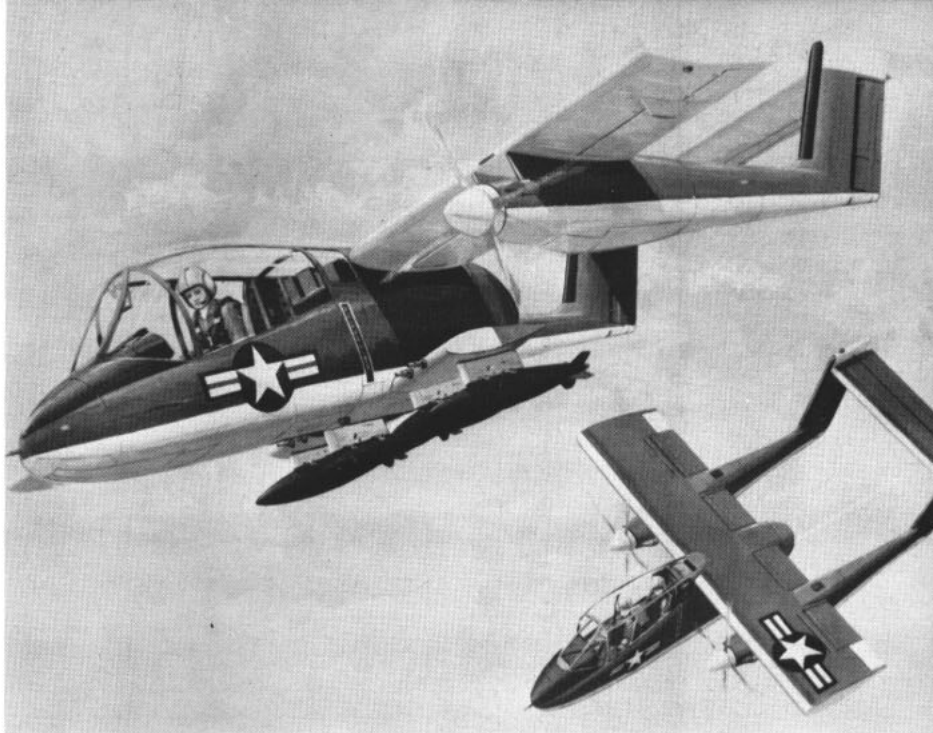
Size, at first glance, seems to be the major advantage of microelectronics. The first microelectronic circuits were invented with size in mind, and were used in satellites. But, as so often happens, the original purpose of an invention may be minor compared with important unforeseen developments.

Reliability and the small cost of microelectronic components (once they are mass produced) may revolutionize the Navy. One commercial company is developing a radio receiver which would fit on the head of a pin and retail for about 10 cents.

If the progress in microelectronics continues at the present rate, in a few years all the necessary electronics equipment aboard a combatant ship may be installed in one medium-sized compartment. A small group of men with semi-technical training could sit before a master control board and insure that all systems were working properly. And, if the radar failed, the operator might just throw the whole thing overboard and replace it with another from his dungaree shirt pocket.

Centralized Electronics Control

MICROELECTRONICS is still in the development stage, however, and it will be a while before it affects the Fleet on any large scale. In the meantime the electronics maintenance people still have their problems, and something must fill the gap between present-day electronics and no-deposit no-return microelectronic sonar systems. That something may be



AERIAL JEEP—The Navy is the developing agency for the COIN aircraft, designed for counterinsurgency and limited warfare where terrain is rugged.



NEW BIRD—Attack aircraft A7A VAL will soon start replacing the A-4 Skyhawk aboard carriers. VAL will have a much greater payload and twice the range.

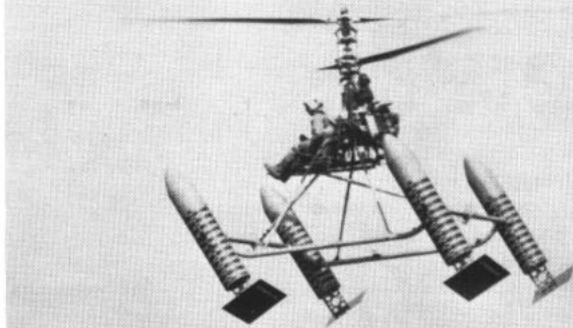
Centralized Electronics Control (CEC).

CEC is being developed to reduce the number of electronic components aboard ships. A major vessel—such as a large aircraft carrier—today carries as many as 85 transmitters and 150 receivers, with approximately 70 antennas spotted here and there. That's quite a collection of gear, and it takes quite a collection of highly trained maintenance men to keep it running.

And the funny thing is: All this gear uses the same basic components, such as filters, amplifiers, mixers, condensers and resistors. The duplication of component parts costs the Navy a pretty penny . . . but until the development of CEC no one could furnish a better answer.

CEC is basically a computer which is connected with all the electronic components normally aboard ship.

Using the CEC, when a skipper



WHAT'S THIS—Research prototype demonstrates flotation concept for copters that will allow them to land in rough sea.

wants to speak with the task group commander he pushes a button. Inside the computer switches close, connecting all the parts of a conventional radiophone. Each component is tested by the computer and, if it's faulty, the machine rejects it and connects another, at the same time notifying the electronics gang that the part is bad.

In the winking of an eye the skipper has his connection with the Task Group Commander—and when he's finished talking the components will be automatically disconnected and held ready for use in another piece of gear, say a radar. Because almost any piece of electronics gear can be used by several sources at any given time, there will be no interference problem. One antenna, for instance, could transmit on several different wave lengths.

Essentially the ship would have more reliable equipment, the components would cost the Navy less (because fewer would be required) and the electronics ratings might be pegged for some extra shore duty. Computers are handy little creatures.

Electronic Brains

SPEAKING OF COMPUTERS . . . this brings us to a subject with all sorts of weird implications: Electronic brains.

Any computer expert will go to great lengths to explain that a computer is not a brain after all—just a stupid machine. Then the same expert turns right around and calls the machine *she*, and you're tempted to conclude that the computer boys say those unkind things just so they won't feel like heels when they lock *her* up at night.

Computers can't think, of course. But that statement may be very debatable in a few years, depending

upon how "thinking" is defined.

Work is now in progress on a new type of computer which may not only think, but be no bigger than the human brain. In fact, it may be an analog to the brain—working on the same principles but using different materials. It's not a matter of building the computer—it is grown.

Study of the new computer is still in the basic stages. It works on the principle that the tree-like structures called dendrites, which connect the cells in the human brain, may account for human memory and reasoning power.

Similar dendrites grow on steel wire when it is immersed in a gold solution and subjected to electrical charges. The artificial dendrites, though not constructed of the same material as the brain, seem to exhibit some of the same characteristics. There are many problems, of which communicating with the computer is the greatest, but some experts have confidence in the idea.

Should the development of the "thinking" computer be successful, future machines could be used to do many of man's tedious and dangerous tasks. Perhaps they could even be trained, like men, to pilot planes, dive beneath the sea, or pilot the first craft to other planets.

But it'll be a while.

Can Computers Be Taught?

THE OFFICE of Naval Research has been seeking a teachable computer for quite some time, and is sponsoring several projects similar to this one.

A teachable computer would have a number of naval applications. An air to air missile, for instance, could be taught to recognize the difference between a Navy *Crusader* and an enemy aircraft. Teachable computers

on ICBMs could be taught to avoid anti-missile missiles and to recognize their target on sight.

Teachable computers, incidentally, are not entirely theoretical. In one of ONR's offices is a compact little machine which has been taught, by repetition, to recognize different letters of the alphabet. If you're ever in Washington, D. C., drop by Main Navy and someone there will be happy to show the device to you; the ingenious little creature has more or less won the status of mascot with its creators.

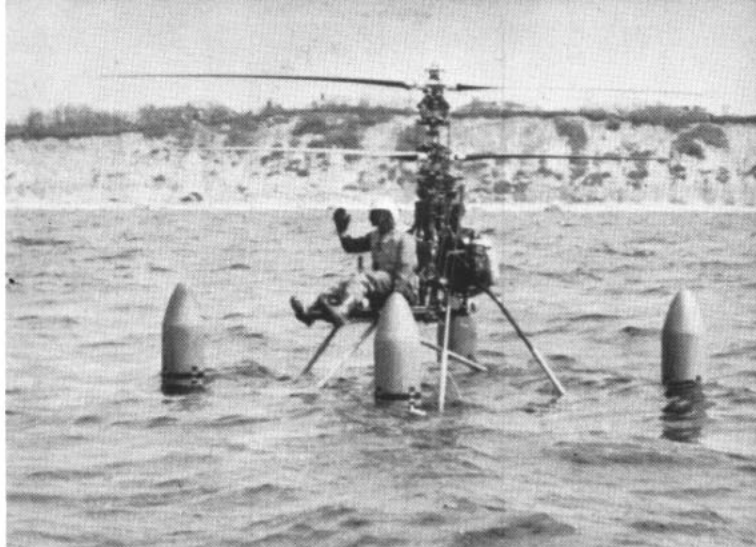
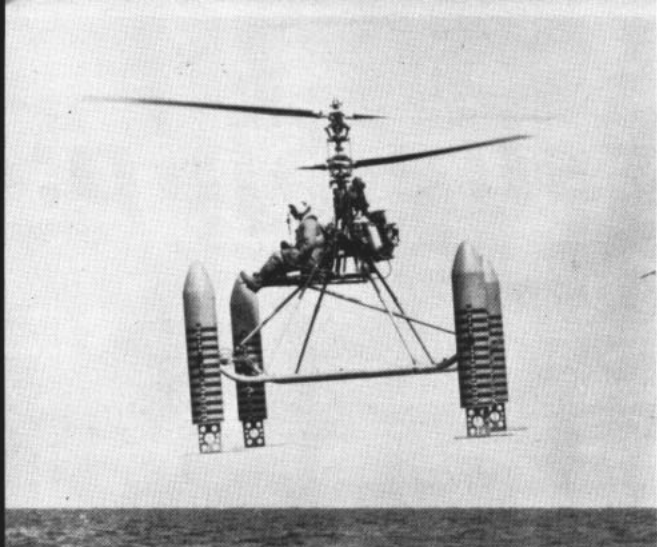
Machine-Made Problems

LEARNING COMPUTERS are still in research stages, of course, and it'll be years before anyone can predict how it's all going to work out. In the meantime the Navy is looking for better ways to utilize existing machines. One interesting idea along this line is backed by the Advanced Research Projects Agency (ARPA).

ARPA is not interested solely in Navy problems but, as is often the case, ONR is watching closely for indications of an idea with naval applications.

The Navy, like other government and commercial concerns which operate computers, has found that big data processing machines have three major drawbacks. First, they're almost impossible to transport, so they're useful only in the general area of their installation. Second, their cost is almost prohibitive. Third, a computer is usually so much faster than its operators that it spends most of the time waiting for instructions . . . and if there's anything the Navy doesn't need it's a loafing computer.

At the Massachusetts Institute of Technology ARPA has added an IBM 7094 data processing machine to the one already owned by MIT,



ROUGH CUSTOMER—Photo series shows floats positioned for land operation and flight, and for rough water landing.

and linked them with about 70 teletype machines spotted around the campus. Many more people now benefit from the machine, increasing the cost effectiveness. As many as 40 offices can send problems to the computer simultaneously.

The teletype machines need not be spotted near the computer. In the MIT project teletypes are located in the Pentagon and several universities as well as in Massachusetts, and tests have been conducted successfully from England and Norway.

By a similar method, a Navy researcher at Point Mugu, Calif. might share computer time with BuPers in the District of Columbia.

Such a plan would allow smaller commands to use a computer, thus freeing Navymen from tedious work and giving them time to do more important things.

Potentialities of Laser

FINALLY, one subject remains which seems to defy classification even by the experts: Lasers.

The laser was introduced to the public in 1958 and today, six years later, at least 500 U. S. concerns are studying the phenomenon and its possible applications. New developments have come so rapidly that even today it's impossible to predict what's in store for the laser.

Basically, a laser beam is light rays of the same wave length traveling in almost parallel lines. Either in theory or under laboratory conditions a laser beam could accommodate some 80 million television channels, break down the atmosphere through which it passes, penetrate a steel plate one-eighth of an inch thick or exert over 15 million pounds of pressure per square inch. In surgery lasers have already been used

to "weld" optic nerves. Nevertheless, lasers are still so highly experimental that it's too soon to tell which of the possibilities will lead to important practical developments.

Et Cetera

THE TIME LAG between idea and finished product makes it theoretically possible to predict the Navy's future in the light of today's research program.

There are, however, many variables. The mortality rate of embryonic ideas is extraordinarily high, and space and security limitations make it impossible to take all projects into

consideration.

Then too, there's always the possibility of the impossible. No one knows when a Sunday scientist might build an anti-gravity machine in his basement, making tomorrow's aircraft obsolete before it even leaves the assembly line.

So only time will tell which of these projects will greatly influence sea power and which will end up in the scrap heap or as mere gadgets. But, all considered, this promises to be a more powerful canoe club in 1975.

—Jon Franklin, JO1, USN

TOP LEADERS, SecNav Paul H. Nitze and CNO, Admiral David L. McDonald, shown with new CNO flag, keep tabs on developments strengthening Navy.



Guided Missile Ship:

WHAT IS IT? A foreign ship with some secret weapon?

No, she's one of our own. She is *USS Norton Sound* (AVM 1).

Formerly a Navy seaplane tender, her present strange appearance is the result of an extensive two-year conversion program.

The massive cylindrical tower, capped with radomes, is part of the Navy's latest shipboard weapons system, now undergoing test and evaluation.

This is the most advanced radar system ever attempted—an integrated system with the ability to “search and track” simultaneously—that is, while searching for new targets it can track known targets, and at the same time generate electronic commands for their interception and destruction. Its radar detection

capabilities can be used against almost any type weapon, ranging from manned supersonic aircraft to missiles, either submarine- or air-launched.

The system was conceived by personnel of the Applied Physics Laboratory at Johns Hopkins University, who are currently serving as technical advisors of the program to prove the equipment in its shipboard environment. Installation and checkout have been accomplished under contract by a private firm.

To expedite development of *Norton Sound's* radar, extensive laboratory and field testing under simulated shipboard conditions (which can rarely duplicate exactly the Navy environment) were eliminated and the weapons system was installed directly on the ship.

THE SPECIFIC PURPOSE of this program is to prove the feasibility of the many advanced electronic concepts used in *Norton Sound's* weapons control system.

The most significant of these concepts is the almost completely automatic operation of the entire system made possible by the extensive use of high speed digital computers.

Another is the elaborate trouble analysis and automatic fault-detection capability.

Immediately behind the bridge of *Norton Sound* is a tower, 30 feet in diameter, five decks high, and weighing 180 tons. This tower houses the microwave structure, power amplifiers, antennas, and miscellaneous equipment. As a result of the radar installation, the superstructure has a silhouette unlike that of any other



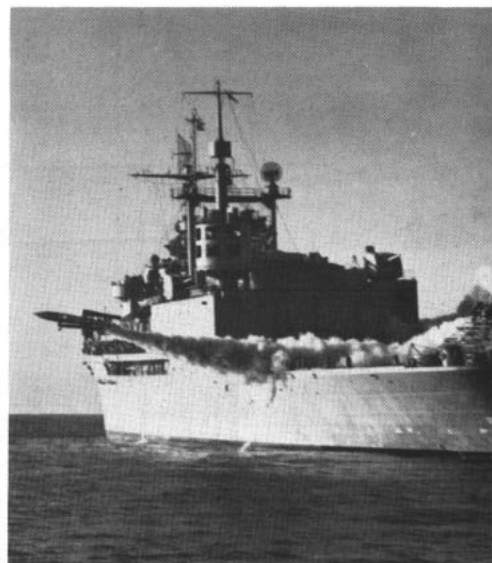
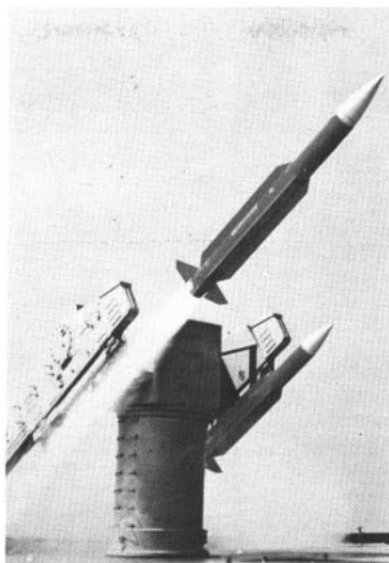
AVM-1

naval ship operating in the fleet.

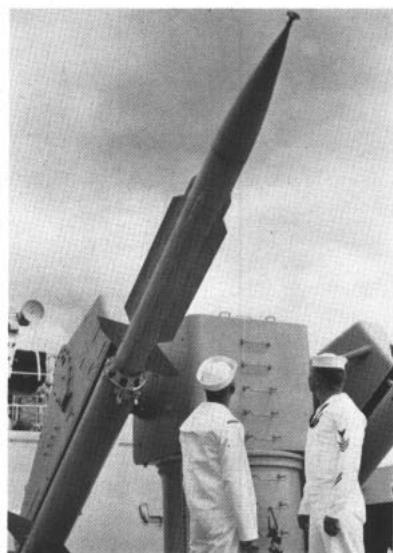
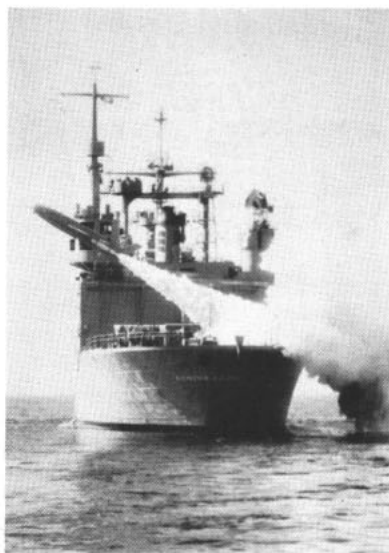
Although details as to how the radar accomplishes its tasks are classified, it reportedly has unprecedented speed in the processing of targets through its automatic data processing computers, which are capable of tracking numerous targets despite enemy attempts at radar jamming.

Norton Sound previously played an important role in the development of such Navy guided missiles as *Terrier* and *Tartar*. Once again active, she expects to continue to lead the way in missile systems research and development for the Navy.

Presently homeported in Baltimore, Md., she serves the Fleet as a unit of Cruiser-Destroyer Force, Atlantic.

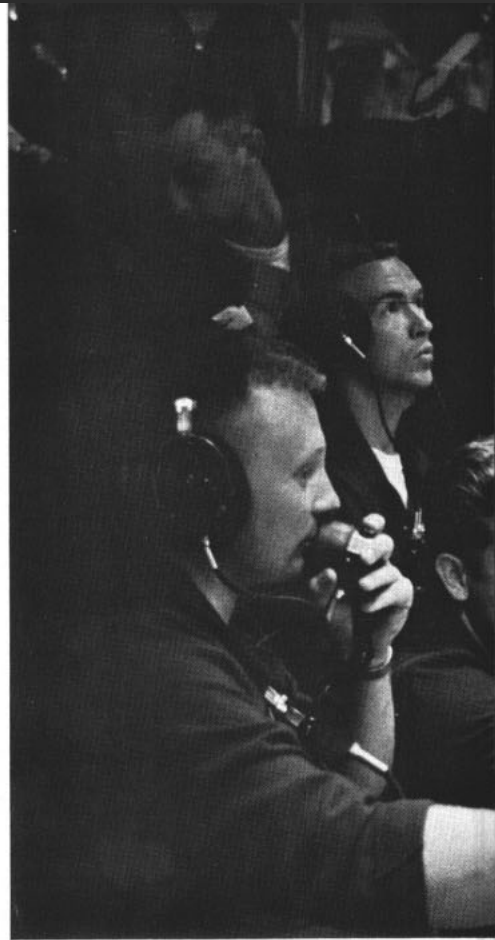
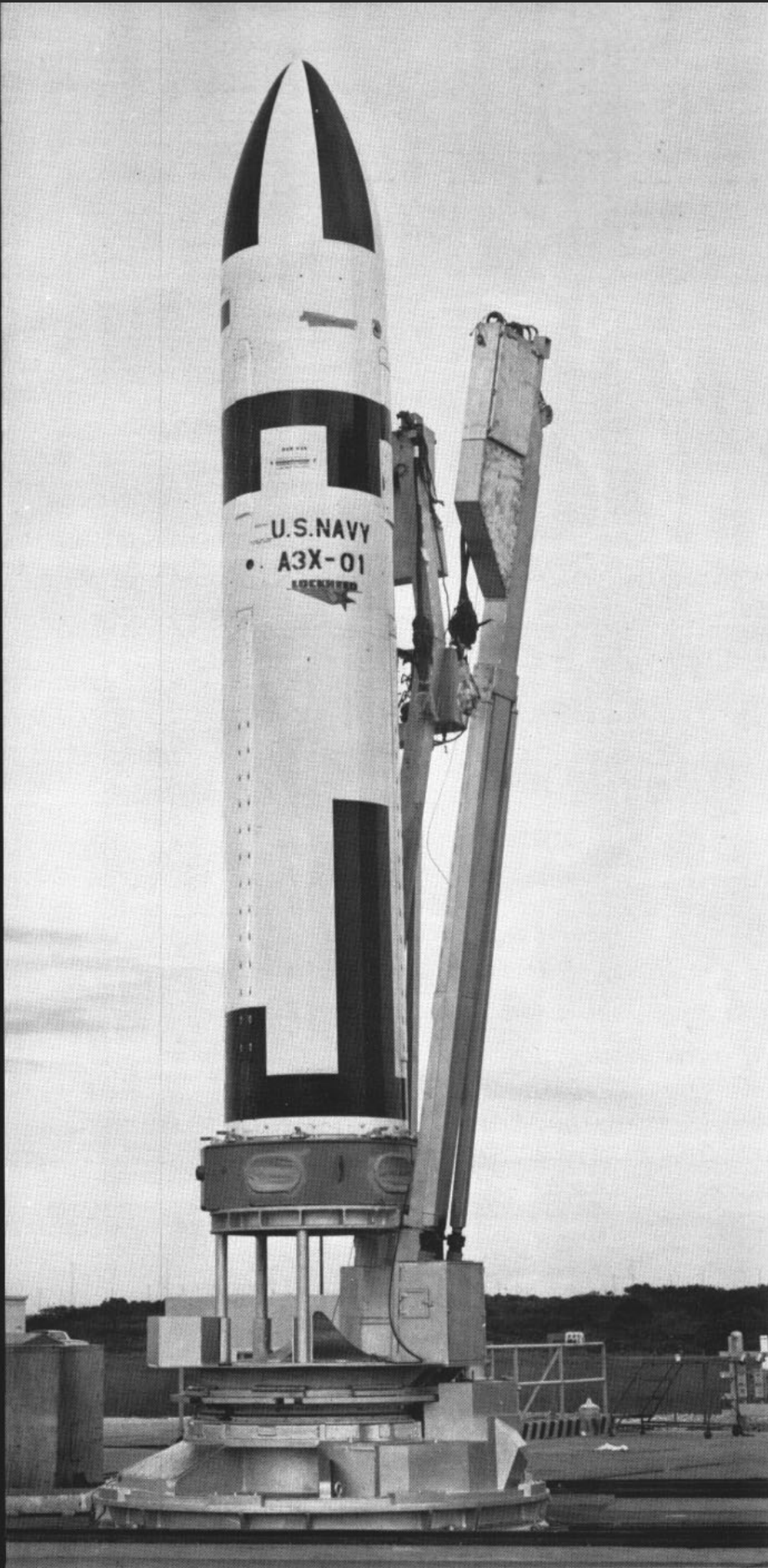


TARTAR and Loon firings were part of *USS Norton Sound's* missile test jobs.



MISSILE SHIP tested *Regulus* and *Terrier* missiles during developmental stages. Below: *Norton Sound* looked like this before new radome system conversion.





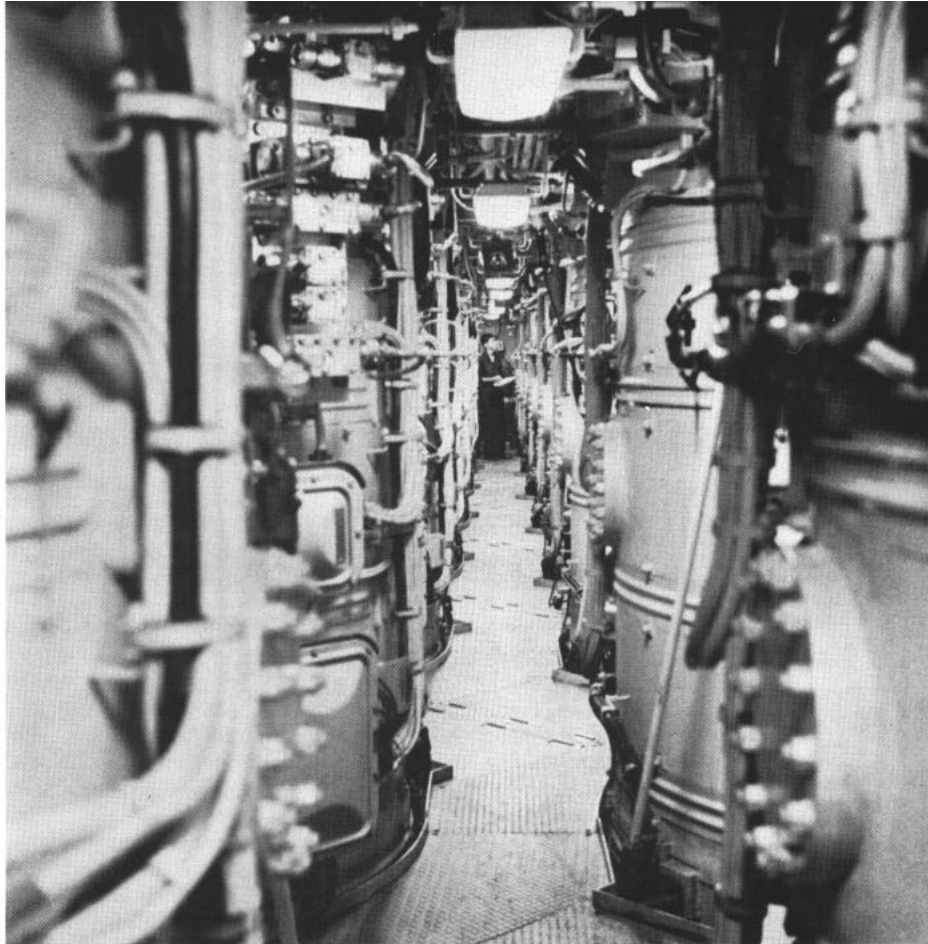
CONTROL room is busy at launching.

Polaris A-3

THE DEVELOPMENT of the *Polaris* missile and the FBM submarine is a triumph of sweat, faith and dedication over almost impossible odds.

The program had its beginnings in 1955, when the Army was building the *Jupiter* rocket and the Navy was instructed to devise a way to launch it from the sea.

Many experts were pessimistic about the Navy's role in the missile age, and put their hopes in land-based weapons. The gloomy outlook was based on the state of missile technology in the mid-fifties. Long-range rockets were all liquid fueled, since no solid fuel of sufficient thrust had been developed. Firing such a rocket involved elaborate fueling and aiming procedures, plus a lengthy countdown, and was a touchy business at best, even on land. At sea, in the confines of a ship, a mistake or accident with the volatile liquid fuel could spell disaster. Then too, it was difficult to determine the precise position of a ship at sea, and a one-degree error at the launch could cause an IRBM



MEN KEEP close watch on control panels. Right: "Sherwood Forest" is submariner's term for Polaris missile silos.

Deploys in Atlantic & Pacific

to miss its target by 30 miles at the termination of its flight.

That was the situation when, in 1955, the Secretary of the Navy created the Special Projects Office and named Rear Admiral William F. Raborn as its head. It was not an enviable job but the Admiral—and the Navy—believed the arguments in favor of a fleet ballistic missile outweighed the problems.

Within a few weeks many of the best rocket and weapons specialists in the Navy were ordered to report to Washington, D. C. The project was under way.

THE FIRST MONTHS held few successes. The problem of safely handling liquid fuel aboard ship seemed more and more impossible and, to make matters worse, *Jupiter* itself proved too fragile for use at sea. The Navy, however, would not give up easily—if the Army rocket was unsuitable, the Navy would build its own.

Liquid fuels were out of the question. The Navy rocket would be

compelled to use solid fuel, despite the fact that such a fuel did not yet exist. The problem was assigned to a group of Navy and industrial scientists while the rest of the program continued on the assumption the propellant would be forthcoming.

By late 1956 the Special Projects Office had developed a fuel powerful enough to lift the heavy nuclear warhead above the atmosphere—but slide rules revealed the rocket would be too large to carry aboard ship. Then came the second big break. A smaller, lighter warhead was made available by the Atomic Energy Commission and, consequently, the rocket could be reduced to a more reasonable size.

In the meantime, Special Projects engineers were running into other problems, the most stubborn of which was the guidance system. Successes, however, were beginning to outnumber the failures. For one thing, engineers had proved the new missile could be launched from a submerged submarine, a great advance over the surface launching

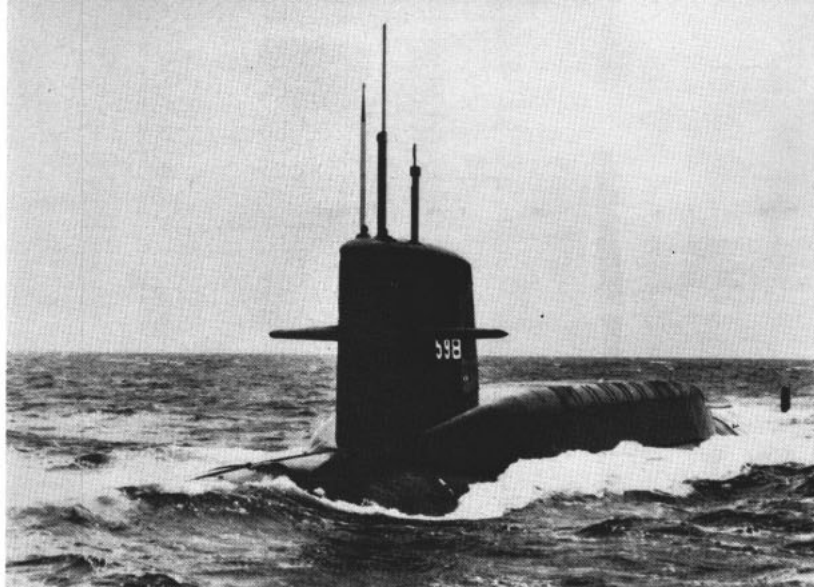
system originally considered for the now defunct Navy *Jupiter*. Things were indeed looking up, and the Navy announced it would have a fleet ballistic missile deployed by 1963.

It was a deadline which shocked many of those familiar with weapons development. Designing and testing a new weapon may easily take a decade, and a concept as advanced as FBM could be expected to take even longer to produce.

THEN, IN 1957, the first Sputnik was fired into orbit from a launching pad in the Soviet Union.

The development of the FBM had been an important program to the Navy for two years; now it was the top project spearheading the nation's struggle for survival. On paper the system was clearly the most advanced and deadliest weapon in the world . . . but more than theory would be necessary if the U. S. was to retain her strong nuclear deterrent.

The 1963 deadline was discarded.



NUCLEAR SUBMARINE USS *George Washington* (SSBN 598) cruises on surface during operations. She was first to launch missile and prove system's value.

The date was now to be 1960.

Midnight oil burned in the Special Projects Offices. Admiral Raborn and his aides met with industrial executives. Red tape was cut, the navigation problem was solved, and the program forged ahead.

In January 1958, although the missile was yet to be manufactured, construction was begun on the first three FBM submarines. The first one, *George Washington*, had been laid down as the attack submarine *Scorpion*, but was cut in two and had a 130-foot weapon system section inserted. The first five SSBNs, the *Washington* class, were the result of this hurried redesigning. *USS Ethan Allen* (SSBN 608), the sixth SSBN, was the first designed from the keel up as a Fleet Ballistic Missile sub.

THE MOST DRAMATIC moment in the development of *Polaris* took place on 20 Jul 1960, when the launching of a test missile from *George Washington* proved the workability of the

system. This was the first time a *Polaris* was launched from a submerged submarine, and the successful launch was repeated less than three hours later.

On 15 Nov 1960 *George Washington* put to sea out of Charleston. Several days later it was disclosed she was on station somewhere in the eastern Atlantic, carrying her 16 nuclear-tipped missiles. On that day atomic war was less likely than it had been for years.

During her first deployment, *George Washington* carried A-1 missiles. The A-1 *Polaris*, with a range of 1200 nautical miles, was an interim weapon, designed to be put on station in a hurry. It went to sea with the first five *Polaris* submarines. Later *Polaris* subs have carried the 1500 nautical mile A-2. Subs carrying A-2 rockets could remain submerged and strike anywhere on the earth, with the exception of a small triangular area in Eurasia. Today

even that retreat is covered by the 2500 nautical mile (2880 statute mile) *Polaris* A-3. By 1967 41 FBM submarines will be operational, carrying a total of 756 missiles.

AT ANY TIME, upon orders from the President, these weapons could be released. Each missile would be forced from its tube by compressed air or, in later submarines the hot gas steam exhaust from a small rocket motor. After clearing the sub the first stage would ignite, driving *Polaris* into the upper atmosphere. After one minute the primary stage would drop away and the second stage would fire for 70 seconds, making final corrections before it, too, disconnected from the warhead and dropped to earth.

The payload would continue upward under its own momentum. At a point some 500 miles above the surface of the earth it would flatten its trajectory and descend, like a meteor, toward its target. Thirty minutes after its launching the warhead would reach its destination and explode at a distance as much as 2880 miles from the submarine.

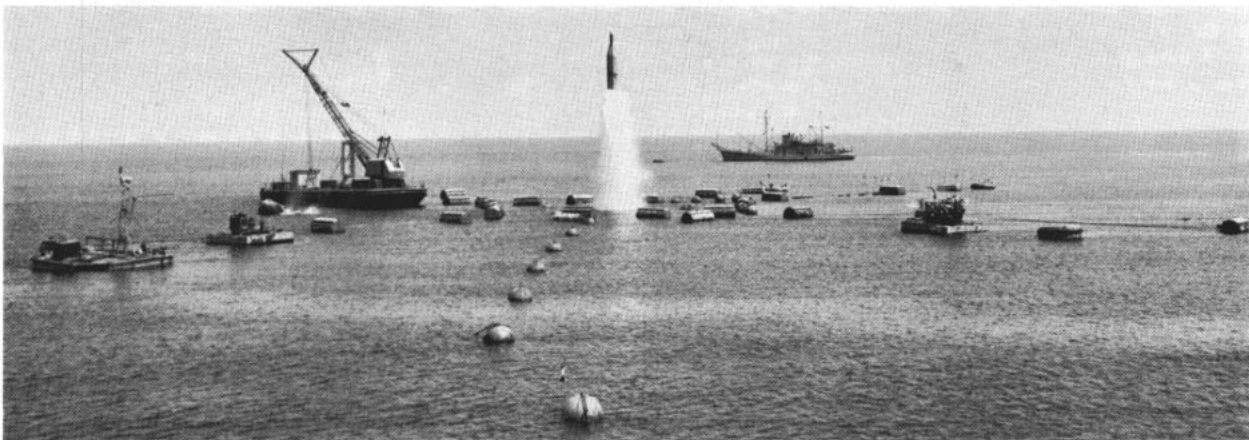
But *Polaris* is a deterrent, and the best part is—it works so well it may never have to be fired.

Admiral Raborn has since retired, but the Special Projects Office continues to follow up on *Polaris* under the direction of Rear Admiral Ignatius J. (Pete) Galantin. The difficult part of the FBM program, however, lies in the past and the office has been given another project: implementing the deepsea exploration and engineering program outlined by the 1964 Stephen Report.

But that's another story. Watch for it.

Jon Franklin, JO1, USN

POLARIS TEST MISSILE is launched from controlled area in missile range during first underwater test shots.





JET IS READY to take off from carrier flight deck. CATCC men will regulate its flight and follow operations.

Carrier Air Traffic Control Center

THE ACTIVITIES on an aircraft carrier's flight deck are, to all appearances, self-contained. Planes move in an orderly procession to the catapults and are recovered with the same precision.

Just below the flight deck, however, the men in the Carrier Air Traffic Control Center (CATCC) maintain a tight rein on the comings and goings of each plane. In a carrier the size of *USS Independence* (CVA 62), for example, this can be quite a job.

Independence's nine squadrons might well be compared to nine airlines using the same airport. Unlike a commercial terminal, however, arrivals and departures are rarely staggered. In fact, *Independence's* CATCC frequently finds itself handling an instrument launching each 30 seconds or an arrival each minute—a traffic rate higher than many of the nation's busiest civilian airports.

While the carrier's planes are in the air, CATCC regulates their altitude, dictates their action in an emergency and tells them when and from where to make their instrument approach to the ship.

While *Independence* planes are being landed, CATCC men maintain a sharp lookout for planes low on fuel for they carry no more than needed for their flight and five approaches to the carrier deck. When a plane has to be refueled before it can safely land, it is CATCC that gives the order.

The men in the Air Traffic Control Center don't do their job with a pair

of binoculars. It requires the best in electronic equipment—especially when there is only a 200-foot ceiling and visibility is less than a mile and a half.

A long-range, all-direction air search radar directs the carrier's aircraft to a marshall point astern of the ship. A medium range tracking radar picks up and controls the aircraft during letdown to its final approach position while a third enables the approach to be made safely in any weather at any time—day or night.

CATCC also functions as an information center. The commanding officer, for example, must be kept in the know concerning his ship's aircraft. Each squadron must also be kept abreast of air operations.

The Engineering Department must

generate enough steam for the catapults and yet have a sufficient head to drive the ship.

The Weapons Department must know how many bombs, rockets or missiles to be loaded on each airplane and the Air Department is interested in the exact fuel load and gross weight of each airplane that is launched or landed.

The Supply Department wants to know when cargo planes or helicopters arrive and depart in the same way the Post Office is interested in mail planes.

The men in the CATCC Division aboard a carrier take their work seriously. They know the degree of their care can mean the difference between order on the flight deck or the clang of fire bells.

—R. A. Graddick, JOC, USN.

AIR CONTROLLERS of *Independence* have plenty of planes to keep them busy.



Trieste: Sea Pioneer

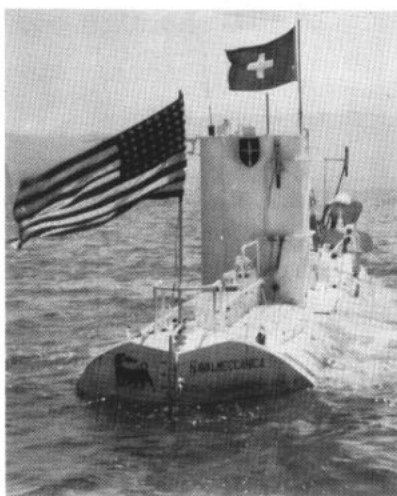
If the Navy's bathyscaph Trieste were a living being, she would be lauded as an eminent pioneer, scientist and heroine. Since Trieste is inanimate, the considerable contribution she has made to the Navy has often served to obscure Trieste herself.

She was the invention of the famous balloonist, Auguste Piccard and was designed to explore the depths of the Mediterranean. The U. S. Navy, however, recognizing her possibilities, altered these plans when it purchased the bathyscaph in 1957 and brought her to this country.

As a member of the U. S. Navy, Trieste has greatly increased our store of oceanographic information, but her biggest job was undertaken in 1963. Oddly enough, it was a job that was probably the furthest from her inventor's mind. It served, however, to cast Trieste in the role of precursor of things to come.

In 1963 Trieste assisted in the search for USS Thresher's wreckage—a job for which she was not intended but which she did well. She was altered by the Navy to serve as a deepwater search and inspection tool and sent back to the Atlantic in 1964 for testing and evaluation as Trieste II.

This is the story of the old and new Trieste and the search for Thresher which provided the link between early underwater research and the Deep Submergence Program the Navy is now beginning.



EARLY Times—Trieste looked like this when Navy first used Piccard's boat for oceanographic studies in the Med.

LAST JUNE an old friend with a new face was towed from the Boston Navy Yard toward a five-square-mile patch of ocean known to the Navy as Area Delta. It was Trieste II, and Area Delta is the name of USS Thresher's grave.

To the unpracticed eye, Trieste II looked pretty much like the old familiar Trieste. She had, however, undergone reconfiguration and overhaul, including the installation of a new hull and relocation of her observation gondola.

Trieste II is about seven and one-half feet longer and three and one-half feet wider than her predecessor.

She also carries 11,000 more gallons of gasoline and displaces an additional 70 tons.

When Thresher sank in April 1963, Trieste was the only vessel in the United States capable of making a visual search for her. Even so, Trieste was agonizingly limited for such a task. She had been initially built to do underwater research in the Med.

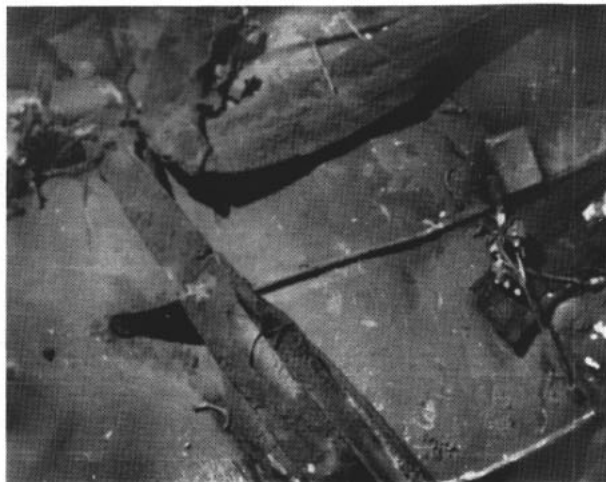
After the U. S. Navy bought her, Trieste widened her underwater horizons by establishing an official world's record for deep submergence in a 37,800-foot descent in the Marianas Trench off the island of Guam.

When Thresher sank, Trieste was called upon to descend to the 8400-foot depth at which the submarine remains lay.

TRIESTE has frequently been called an underwater balloon which, in a sense, she is. The thin-hulled structure above the observation gondola carries lighter-than-water aviation gasoline. Her ballast consists of steel pellets held within the hull by magnetic force. When Trieste's ballast is released at the end of her descent, gasoline substitutes for the helium in more conventional balloons, bringing the bathyscaph to the surface.

Nevertheless, the connotation of underwater balloon is not entirely apt. A balloon is not, strictly speaking, maneuverable; Trieste is. Trieste I could maneuver at the bottom at

SONAR DOME portions of Thresher class sub were photographed by Trieste, while deep down looking for lost sub.



approximately one knot—painfully slow with a large area to cover and so little time in which her batteries could endure the demands made upon them.

In the beginning, *Trieste* had no equipment for picking up objects seen from within her gondola. This was remedied midway through the 1963 search when the bathyscaph returned to Boston for overhaul and repairs. She was fitted, as was mentioned earlier, with an arm and claw similar to those used by technicians handling radioactive material.

Trieste I, which was designed to dive only under the most favorable conditions, also found the going pretty rough in an ungentle North Atlantic. Her eggshell construction was an operational liability and much of her machinery, equipment and electrical wiring was exposed and vulnerable to the forces of the sea during tow.

Her towing speed was also painfully slow—four knots in a calm sea and considerably less in higher sea states.

Because of the low freeboard, diving operations had to be carried out with the greatest care to insure the safety of the men working on *Trieste* both before and after a dive.

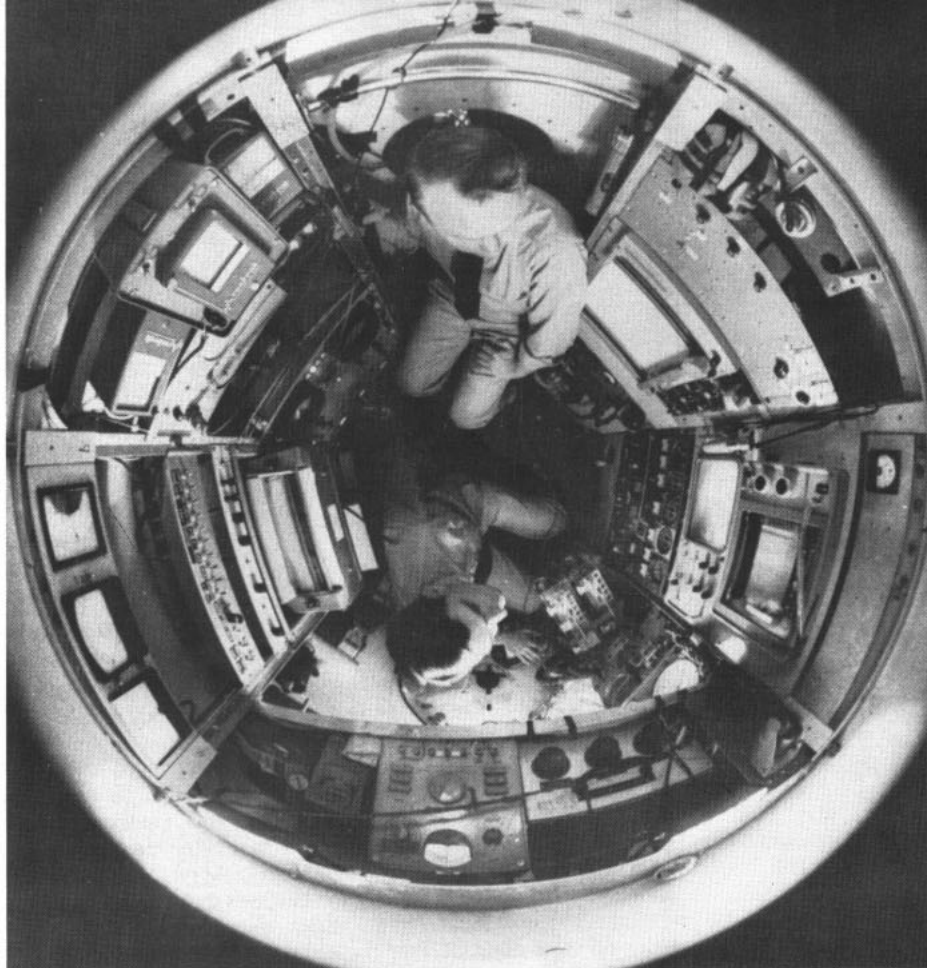
EVEN WITH her limitations, *Trieste* found *Thresher's* grave. Surface oceanographic ships had narrowed the search area to a comparatively small space in the vastness of the Atlantic.

In her early dives, *Trieste* made some telltale discoveries which indicated that she was near her goal. Perhaps she passed within a few feet of *Thresher* several times but with limited sonar, vision was limited to the range of *Trieste's* lights and ports.

On one of her last Atlantic dives in 1963, the men inside *Trieste's* gondola noticed odd flecks, mounds and unnatural sediment—tiny particles of paint and paper. Some of these indications had been seen before, but this time *Trieste* inched her way into the midst of a mass of battery plates and lead ballast. *Thresher's* bow section, bearing the first digits of her draft marks, came into view.

Trieste maneuvered carefully amid the wreckage. To become entangled in the twisted steel could spell disaster.

A mess of metal came into view, towering high above the ocean floor.



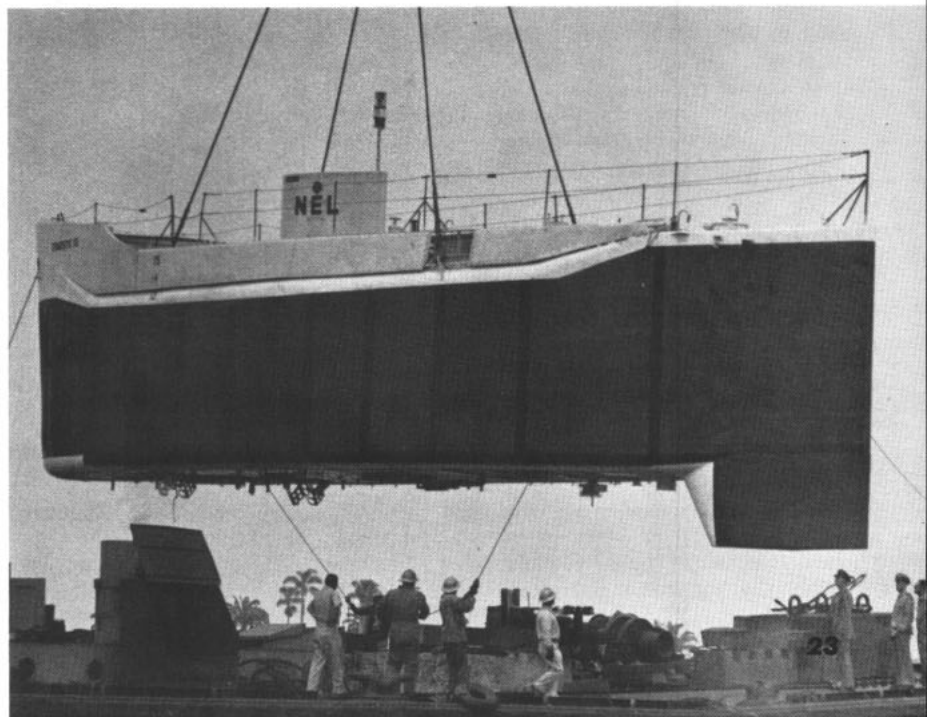
TOP VIEW of *Trieste* gondola shows men and equipment, before access tube is flooded to maintain even internal pressures. Photo was taken in June 1963.

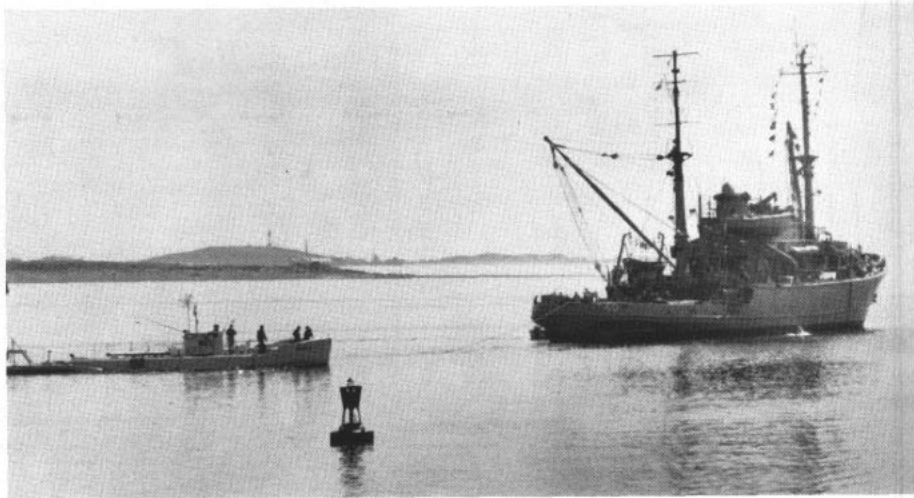
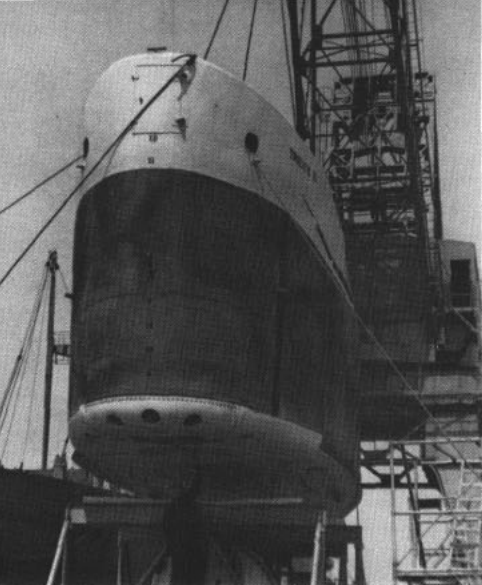
By this time, *Trieste's* batteries were running low. Before she surfaced, however, her mechanical arm picked up a section of twisted pipe which bore the shipyard code for *Thresher*—"593 Boat." *Thresher* had, beyond

a shadow of doubt, been found.

Trieste returned to the surface. The storms of early autumn put an end to dives that year and *Trieste* was towed back to Boston and shipped home to San Diego.

NEW LOOK—*Trieste II* is hoisted aboard for move from San Diego to Boston.





TRIESTE II is off-loaded at Boston Naval Shipyard. (Right) The bathyscaph begins tow to area where *Thresher* sank.

AFTER HER REDESIGN job, *Trieste II* emerged with her float enlarged about 30 per cent. The amount of steel ballast the float could carry was increased to 23 tons. This was supported by a comparable amount of aviation gasoline.

The liquid flotation system of *Trieste II* was improved by compartmenting the float into 18 individual tanks instead of the previous nine. If one tank were lost, the result would not mean disaster.

To improve the bathyscaph's seaworthiness, her safe towing speed was increased from four to 10 knots.

A basic teardrop shape was designed to provide stability at higher speeds. The new shape also made for more economical construction.

An upward force is now exerted on the bathyscaph during tow thanks to her new flared bow. The new bow also provides protection to personnel and instrumentation while *Trieste II* is at sea.

A plastic fairwater was developed to shield the access tube to the sphere from waves, wind and sea spray. This extends her ability to operate safely in state three seas.

The average freeboard of the walking deck topside was increased from 10 to 24 inches for the safety of men working there.

Topside wire runs were secured in fiber glass wireways to protect them from wave damage. Underwater wiring was enclosed in hard plastic conduits to protect it from towing damage.

Batteries, underwater lights, cameras and sonars were protected from wave slap by locating them inside the float. These changes were especially important; topside battery

box damage was a big factor in slowing the 1963 *Thresher* search.

Trieste II's propulsion motors and electric relay boxes were given a positive pressure system to compensate them with sea pressure while maintaining their electrical integrity.

The system used on the old *Trieste* allowed salt water to enter the system, which decreased the reliability of the electrical equipment.

One of the most noticeable changes to *Trieste* is the recessed sphere and ballast tubs. Much other equipment was also recessed.

Battery capacity was increased from 60.5 kw hours to 117.6 kw hours, which permits *Trieste* to remain for longer periods on the bottom.

Trieste II's new propulsion system increased her speed and endurance from one knot for four hours to 2.4 knots for six hours.

The first search for *Thresher* made Area Delta the most thoroughly mapped piece of ocean in the entire world. Oceanographers know precisely what to expect during the descent to the bottom and what they will find when they get there. A known environment is necessary before a new search method can be evaluated and before rescue systems for deeply submerged submarines can be devised.

Making use of this knowledge last summer, *Trieste II*, the cargo ship USNS *Mizar* (T-AK 272) and the salvage ship USS *Hoist* (ARC 40) traveled to Area Delta in the Atlantic.

Although *Trieste's* presence during June, July and August was primarily for test and evaluation, she also used her increased capabilities to

take further photographs of *Thresher's* wreckage.

Mizar also photographed the wreckage by means of underwater cameras towed over the ocean floor. In this, she was aided by an improved underwater tracking system which used sound in maintaining a continuous fix on the positions of the camera in relation to the ship.

During the 1964 operation, *Trieste II* spent a total of 37 hours submerged during five days and obtain-

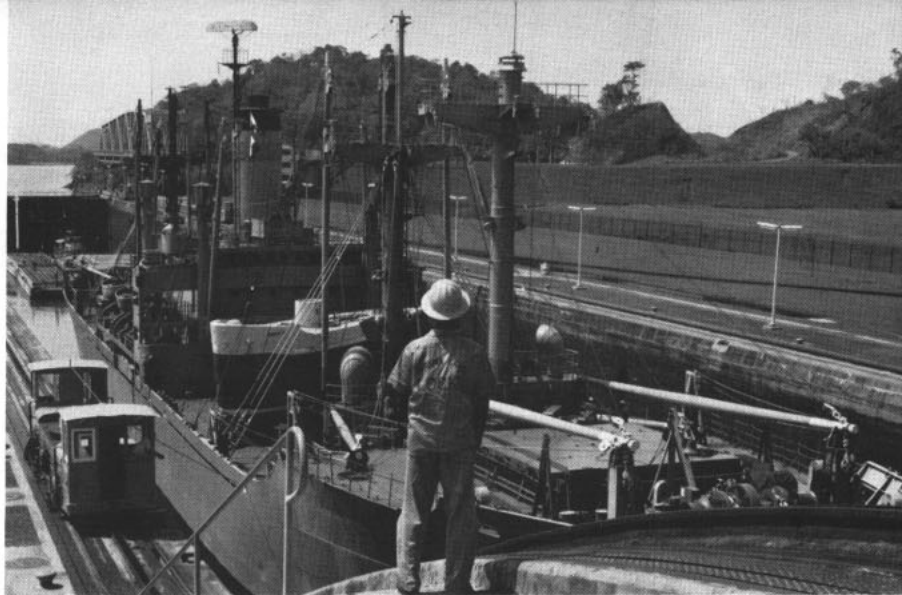
Deep Submergence

THE NAVY has long played a part in oceanographic research accumulating information on ocean floor topography, marine life, sea chemistry and the effect of the sea, air and land on nature's most basic functions.

In years past, most of our knowledge has been gained along the continental shelves which slope away from the world's land areas for a distance of from 10 to 200 miles. Most of the ocean floor, however, remains uncharted.

The bathyscaph *Trieste* provided the primary means by which the Navy was able to obtain deep ocean information first-hand—instead of relying on acoustic soundings. But *Trieste* was only one vehicle in millions of square miles of ocean and not equal to the tasks the Navy had planned.

A Deep Submergence Systems Review Group was convened to evaluate the Navy's plans for locating, identifying and recovering



TOW TIME—*Trieste II* crew prepares to get underway. *Rt*; *Trieste II* aboard USNS ship eases through Panama Canal.

ed much valuable information which can be used for future deep sea searches.

When the autumn weather again put a stop to *Trieste's* underwater explorations, she was returned to Boston and was shipped in late October to her home in San Diego.

The *Thresher* tragedy was a spur to the Navy's interest in deep submergence vehicles although by no means a starting gun. There is, for example, the underwater research vehicle popularly called *Alvin* now

being tested by oceanographers under contract to the Navy.

However, when *Thresher* sank, the Navy moved to develop further deep submergence capability than that furnished by *Trieste*. This year, the Navy will see the beginning of a five-year segment of an extended deep submergence program which will dwell on the development of vehicles for locating disabled submarines and for rescuing the men trapped in them.

Methods of recovering large and

small objects from the bottom will be investigated and methods of maintaining man in the sea will be explored (see box).

For years acoustic sounding was the best method for obtaining information on the shape of the ocean's floor. *Trieste* represented the first successful attempt by the Navy to obtain information first-hand from the deep ocean, thus providing a link between the past and the future which may well be in what now seems the realm of science fiction.

Systems Review Group Proposes Techniques for Search & Rescue

deeply submerged objects as well as for recovering men trapped in them.

The group was also to develop both a five-year deep submergence plan for the Navy as well as a long-term plan with a reliable system for recovery of both men and objects from the ocean.

The review group proposed that rescue operations take place entirely underwater, where men and equipment were impervious to weather conditions.

A search and rescue vehicle would ride to the aid of a sunken submarine while attached over the deck hatches of a mother sub.

When the search craft neared the wreck, it would detach itself from the mother sub and, using searchlights, sonar and magnetic detection gear, locate the disabled craft.

Once the disabled submarine was located, rescue would be made by a bell-shaped vehicle which,

powered by battery-driven screws, would ferry the trapped submariners from their ship to the mother sub in groups of two or three.

Another aim of the review group was to develop plans which would enable men to perform useful work in the ocean for long periods of time. This would advance the techniques of unassisted escape from disabled submarines and increase the diver's ability to assist in rescue operations.

It would also greatly improve our ability to salvage sunken objects and to perform a variety of useful tasks on the continental shelves.

A third target of the group was to review plans for two search units, each unit to consist of a surface support ship and two small submersibles with a 20,000-foot depth capability.

The vehicles would recover small objects from the ocean floor as well as perform search and investigation missions. They will probably

be preceded by an initial test vehicle which would operate at a minimum of 6000 feet.

Recovering large objects intact—complete submarines, for example—would require training and equipping divers for prolonged submerged work. It would also be necessary to develop and procure lifting equipment capable of raising up to 1000 tons from depths of 600 to 800 feet and improving welding, cutting, hull attachment, underwater lighting, explosive separation and similar techniques.

The review group's report containing these proposals was accepted by the Secretary of the Navy and assigned to the Special Projects Office which called for plans from industrial contractors—the first step in converting a proposed program to hard reality.

By the end of this year, contracts will probably be awarded for the system or systems the Navy chooses to develop.

—Robert Neil

LETTERS TO THE EDITOR

From TAR to Regular

SIR: After I was discharged from the Regular Navy last year I enlisted in the Reserve (TAR) as a stationkeeper on active duty. Now I would like to re-enlist in the Regular Navy.

Do I have to wait until my present enlistment in the Naval Reserve expires? BuPers Inst. 1130.4G states if you serve one year on active duty (which I have done), you may switch to Regular by being discharged from the Naval Reserve and reenlisted in the Regular Navy at the convenience of the government.

Do I interpret this instruction correctly?—W. E. D., YNC, USNR-R (TAR).

• The section of BuPers Inst. 1130.4G to which you refer does not apply to TARs. Information concerning TARs transferring to USN status is contained in enclosure (2) to that Instruction, which stipulates that TARs may, if eligible, enlist in the Regular Navy at the expiration of enlistment or extension of enlistment. This applies to you.

The section containing provision for enlistment after serving one year on active duty is found in enclosure (3), and does not apply to Reservists serving in TAR billets.—ED.

Manatee Is Not Impressed

SIR: We of *uss Manatee* (AO 58) were happy to learn our sister ship *Taluga* (AO 62) was busy during her cruise (ALL HANDS, September 1964), but by our standards she was taking it easy.

During five months in WestPac *Manatee* has performed over 200 replenishments compared to *Taluga's* 150. While *Taluga* pumped 15,000,000 gallons of fuel, *Manatee* transferred 20,000,000.

And we're reasonably sure the other oilers were doing just as well. For example, how about *uss Kennebec* (AO

This section is open to unofficial communications from within the naval service on matters of general interest. However, it is not intended to conflict in any way with Navy Regulations regarding the forwarding of official mail through channels, nor is it to substitute for the policy of obtaining information from local commands in all possible instances. Do not send postage or return envelopes. Sign full name and address. Address letter to Editor, ALL HANDS, Room 1809, Bureau of Naval Personnel, Navy Dept., Washington, D.C. 20370.

36)?—Crew, *uss Manatee* (AO 58)

• As of late there seems to be quite a lot of life in the fleet oiler crews, what with claims and counter-claims and counter-counter-claims. We'll let you decide the winners among yourselves, and we'll just sit back and watch. It should prove interesting.—ED.

Selection Boards for EMs?

SIR: Even though the Navy has the services' best advancement system for its enlisted personnel, I believe it's becoming outdated. Today in business, the individual who is eager to learn and proves himself to the company receives the reward. Why doesn't the Navy advance its men (especially those competing for second and first class) using this same principle?

Under the current system, a man's professional performance, time in service, time in grade and awards are used to compute his multiple. And such things as enlisted correspondence courses, practical factors for the next higher rate, and the recommendation of the commanding officer are enough to let the individual take the advancement exam. But these shouldn't be the only requirements.

I also feel that the advantages of extra correspondence courses are ignored. The man who continually improves himself through these doesn't receive any recognition toward his advancement. Of course, these finally are recognized when the man seeks a commission. But I think they should pay a much bigger part in enlisted advancement.

In addition to the present system, I'd like to suggest that a selection board of qualified personnel (E-7 and above) should determine which personnel who are competing for E-5 and E-6 are the most deserving. The board also should consider leadership, military bearing and self-improvement (correspondence courses). All this could be done at the Bureau of Naval Personnel with the men's records.

Those wanting to advance would have to demonstrate that they deserve

it in all respects. They would be competing with their shipmates, not only through an exam, but also in other areas equally important. I believe this would reduce the "I don't care" attitude that seems to be common today.—E. T. B., SK2, USN.

• The selection board proposal has its merits, but it has its weaknesses, also. In the first place, what would the selection board accomplish that the Naval Examining System doesn't?

Then, too, there would be so many people involved that the project would be unwieldy. Take a look at those who went up for E-5 and E-6 in August 1963—a total of 82,752. No matter how you look at it, that's a lot of people. And in February 1964 there were 92,815 who competed for first and second class.

With numbers like this, do you think a selection board would improve the situation? We don't.

What gave you the idea that the persons who are advanced aren't the most deserving? In order to pass the exam satisfactorily, they must have proved they are eager to learn enough about their specialties to make the next higher pay grade.

And Navymen and (women) do compete with their shipmates in areas other than their profession. You'll always find questions on every exam about different military subjects (including leadership and military bearing).

There have been many studies made of this system, and each time it has been proven that the system is the fairest and best for the greatest number of people. Of course, these probes occasionally find ways to improve the system (faster results for example).

Back to your selection board proposals for a moment—just one board would never do. To evaluate a man's competence honestly, a specialist in that man's rating would be required. That

Ships Serving in Cuban Crisis

SIR: Since the Cuban crisis I have heard rumors that a list of ships and units whose members are eligible to wear the Armed Forces Expeditionary Medal has been published.

Is there such a list? If so, where do I get one?—G. K. M., SM2, USN.

• A list of Navy ships and units entitled to the medal for service in the Cuban crisis hasn't been published yet. When it is, it will be disseminated throughout the Navy.—ED.

The New CO Looks You Over

SIR: Which commanding officer conducts the personnel inspection at a change of command ceremony—the relieving or departing CO?—J. S. H., LTJG, USN.

• It's the new CO's inspection, not the old. The intent is to assist the new commanding officer in his evaluation of the command. It's comparable to his inspection of other aspects, such as material readiness, record keeping and status of funds.—ED.

means there would have to be, in effect, 64 selection boards—one for each rate.

To break it down even further, let's take one of the larger rates in the Navy as an example—aviation machinist's mate. With over 11,600 second and third class on active duty now, you can be sure that at least one-third of them will be competing for the next higher rate. And by the time the board decided who should be advanced, too much time would elapse. In short, you would only be aggravating what you are trying to eliminate.

On the surface your argument about correspondence courses sounds good. But a second look uncovers a few flaws. You're forgetting the purpose behind these courses—they're designed as a training aid to help you prepare for the exam, not as a means of pursuing your special interests.

Here's something else to keep in mind: Correspondence courses cannot and are not intended to be given under controlled conditions. If they were, you would be taking another examination. In addition, you would defeat the entire purpose behind the courses.

Another point: You do get credit for correspondence courses—indirectly. If you'll take a closer look at the multiple system, you'll see there are five factors that make up your final multiple: Examination score (80 points), performance factor (50 points), active service (20 points), time in pay grade (20 points) and awards (10 points). Correspondence courses will certainly help you in the first two areas, which total up to 72 per cent of your final multiple. The remaining three factors account for only 28 per cent.

Whom does this system help the most? It helps the man who is eager to learn and proves it.

Of course, there is the quota situation. The Navy is limited to the number of people it can advance in most rates, no matter how many pass the exam. About the only thing we can say is—study harder.—ED.

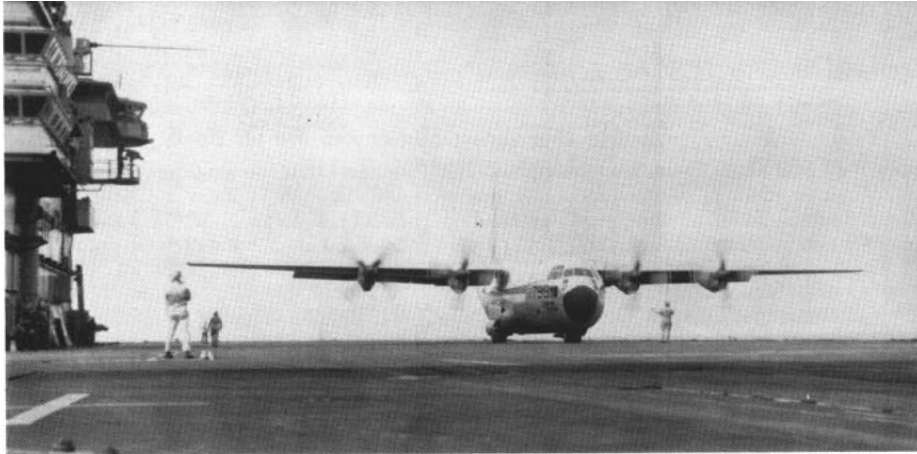
Star Spangled Banner

SIR: According to DNC27, Annex A (Public Law 829-77th Congress), as amended by Public Law 107-83rd Congress (Section 4 (J)), the U. S. Flag, when no longer usable, should be destroyed by burning.

This would indicate that it could be thrown into an incinerator. But I claim the bunting must be separated from the field and then (since it would no longer be a flag) it may be burned and buried.—L. J. G., RMCA,USN.

• When a flag is no longer a fit emblem for display it should not be cast aside or used in any way which might be viewed as disrespectful. It is not to be preserved, it should be destroyed as a whole, privately, preferably by burning or other method lacking in any suggestion of irreverence or disrespect.

Incidentally, there's nothing to back



JUMBO LANDING—C-130 Hercules transport prepares to take off from USS Forrestal (CVA 59) during suitability tests. Pilots made 21 full stop landings aboard flattop at weights up to 120,000 pounds without tail hook normally used by carrier aircraft. Maximum propeller reversing was used instead.

up your claim that the field must be separated from the ensign before burning. A mutilated flag is still a flag. Neither is it necessary to bury it after burning.

Just remember the flag represents your country, treat it accordingly, and you won't go far wrong.—ED.

Cap'n Mossbottom Again

SIR: Cap'n Mossbottom was flattered to see his name in the September number of ALL HANDS. While re-reading his letter, that bit you threw in about tossing a rubber banana to the rock apes on Gibraltar started the old fud reminiscing.

He said he saw quite a few of those rock apes back in his days in the old Pittsburgh (Armored Cruiser 4). One day he saw a group of the rascals raid a local huckster's fruit wagon. The man forgot to close the wire gate of his display when he turned to pass some fruit to a housewife nearby, and the rock apes made a quick dash in and out of that open gate. In a couple of seconds they had fists-full of fruit, and away they clambered back up on the hillside to chuckle and gorge themselves with their haul.

As for where they lived back in '22, Mossbottom was one of the few officers in his outfit who ever made it to the



CENTURIONS—Six pilots of Attack Squadron 153 (Det. Romeo) hold cards signifying their 100 arrested landings each aboard USS Kearsarge (CVS 33), compiled during first four months of WestPac cruise. Pilots are (left to right, standing): LT J. J. Fleming, LCDR R. J. Schweitzer, LT M. A. McCarthy, (front) LT J. F. McCarthy, LT W. C. Hollis and LT M. L. Plattis, flanked by carrier CO, CAPT C. P. Muckenthaler (left), and Commander Carrier ASW Group 53, CDR R. S. Brooks. Pilots believe landings to be Navy air record.

Should the Work of Personnelmen Be Considered A Professional Secret?

SIR: One of your issues way back last June prompts me to ask: "Why are so many 'tools of the trade' exposed to every sailor in the Navy?"

In one issue of ALL HANDS, the magazine urged Navyman to check BuPers Report 1080-14. At this time I was the senior personnelman for a patrol squadron based in the States.

That one little statement caused quite an upset in my office, for most of the enlisted men in the squadron had to see the "1080" and, of course, hadn't the foggiest notion of what each column represented. Every man was curious about whether the personnel office was doing right by him. A lot of time was consumed in counseling these men, and I sometimes wonder just what was accomplished. Now that each man knows this listing arrives each month, many are on hand—punctually—to review the report.

The June issue goes into detail on how to fill in the rotation data card (and the coding for Seavey-Shorvey) which I believe few personnelmen allow the individual to fill out. In many offices, roughs are prepared to be used by the interviewer with the man concerned. Information is then transcribed to the original and the file card by a PN.

Now, each man will undoubtedly want to know why he can't fill out his own card.

Is there a lack of trust in the personnelman? Does the Bureau feel that the average personnelman does not take a sincere interest in his work and the men he is serving?

My whole point is that I cannot research ALL HANDS to learn how to cook a meal, calibrate complicated electronic gear, decipher code, etc., so why should the average Navyman be able to check up on his personnel office by referring to this publication?

I have always had a great deal of interest in ALL HANDS and look forward to each issue. However, I cannot help

but feel that the magazine is interfering with my job. I know my job, have a sincere interest in it, and have never turned a man with a need away from the door.

A sailor should be able to depend on his ship's office for counseling, career information and any other assistance he might need. If we can't help him, we know where to send him to get results. Believe me, it is very disconcerting to have a sailor come up to the door with his ALL HANDS in his hip pocket—ready to cross-examine the ship's personnelman.

In many cases his endless questions, for various reasons, simply do not apply to him as an individual.

My primary reason for writing, if not yet obvious, is a fear of becoming a robot, paper shuffler, or what have you. The most enjoyable part of my job is having a man ask a question, or ask for some help from me and, in turn, being able to assist him, thereby making one more sailor in the crew feel happy and secure with his ship's office.

One other item in closing. On page 53 of the June 1964 ALL HANDS, the *Enlisted Transfer Manual*, my handbook, is brought to light. After the magazine was on board about two hours, four men came to the ship's office to inspect this intriguing manual. This is the only manual on board and we obviously cannot have people constantly referring to it.—T. A. M., PN2, USN.

• We're glad you asked the question because, we suspect, it represents the thinking of quite a few men. It is possible that, within a reasonably short time, you will receive from the Fleet a number of better answers than we can offer.

However, let us answer your query with one of our own: Do you have a bank account? You would feel annoyed and suspicious, wouldn't you, if the bank were suddenly to cease sending you your regular statement? You would

have every reason to wonder what was going on. After all, it's your money and you have every right to know what's happening to it. You want to be sure that your deposits are properly credited and that you are not charged with more withdrawals than actually occurred.

We think the analogy holds true concerning the careers of the men aboard your ship. Those forms with which you are so familiar are not just pieces of paper. Each one represents a portion of a man's life, his job, and his pay. Why shouldn't he be interested?

If we understand you correctly, you resent exposure of your "tools of the trade." Why?

Reading between the lines, we assume that you enjoy your job and are proud of it. We're just guessing now, but we would also assume that you like the Navy, and are proud of it as a whole. But the Navy is an aggregate of some 650,000 men and women working together, consisting of a multitude of abilities and personalities. Personnelmen do not work in a vacuum any more than do Hospital Corpsmen, Storekeepers, Boatswain's Mates or Air Controlmen. Aren't you interested in what they do?

We are. We have gone on the assumption that the more you know about a man the better you will like him; and the more you know about his job, the more you will respect him. We like to think that most Navy people are pretty decent, and that the jobs they do are pretty important. We certainly think that of Personnelman is important. Why shouldn't we tell the rest of the Navy what you do?

In closing, you say: "This is the only manual (*Enlisted Transfer Manual*) on board and we obviously cannot have people constantly referring to it."

Why not?

We could go on at considerable length in this vein, but we'll let the Fleet answer your query.—ED.

top of the southern tip of the Rock. A cave there was said to be the beginning of a tunnel that ran under the strait to Morocco. He doesn't know how true that one is, but remembers crawling down a good couple of hundred feet for a look-see.

So next time your lads travel that way, have them take a good climb up the Rock, then another climb down into it, and they'll see where those rock apes live.—Isaiah Olch, CAPT, USN (Ret).

• It seems that old Cap'n Mossbotom really got around in his day, and ALL HANDS always enjoys recording his reminiscences. We had him pegged as an adventurer, and his excursion in the cave bears this out.

However, it is disappointing that he

turned around before discovering whether the tunnel actually led to Morocco. Just why is apparently to remain his secret.—ED.

Souvenir Book

The crew of USS *Intrepid* (CVS 11) celebrated their ship's 20th anniversary by bringing out a 274-page year book.

The publication reviews the life of CVS 11 since her christening on 16 Aug 1943.

Anyone interested in obtaining a copy of the book may do so by writing the Service Information Office, USS *Intrepid* (CVS 11), c/o Fleet Post Office, New York, N. Y. The cost of the book is five dollars.

Another Strange Monster of the Sea

SIR: Several of us have been trying to find out what a golden shellback is. We have come up with two definitions which sound plausible: A golden shellback is a person who has crossed the equator at the 180th meridian; or, one who crossed the equator and the 180th meridian on different occasions.

We have also considered the possibility that there is no such thing as a golden shellback. What say you?—A. C. H., LTJG, USN.

• Yes, there is a golden shellback. At least we have encountered several Navyman who claim the title by virtue of their crossing the equator at the international date line.

As to the origin of the term, our sources of information are silent.—ED.

Who Really Broke the Ice?

SM: As an old Antarctic hand, I read "A Year in the Deep Freeze" (July 1964) very closely. Interesting—but I'd like to point out an error in the center-spread on page 32.

According to the article, in 1961 the icebreakers *USS Glacier* (AGB 4) and *Staten Island* (AGB 5) penetrated farther into the Bellinghausen Sea than any previous ships, and explored the Eights Coast. They were credited with discovering that "Thurston Peninsula" was really an island.

If you recheck your sources, I think you'll find it was *Glacier* and *Burton Island* (AGB 1) which made the trip, not *Staten Island*. I was a member of the *Burton Island* crew at the time, and have movies of the entire trip to document my statement.—H. R. M., IC1, USN.

• Basically, you're right—but it looks as though you've gotten your dates mixed up. After that, it boils down to a matter of semantics. We said *Glacier* and *Staten Island* found *Thurston Peninsula* to be an island. "Confirmed" would have been a better word.

Just to set the record straight, here's the entire story. It's worth telling anyway.

To begin with, the 1961 expedition was not the first to break through the Bellinghausen Sea ice sheet to the Eights Coast.

One year before, in January and February of 1960, *Burton Island* and *Glacier* penetrated to the Eights Coast and were credited with being the first surface ships ever to do so. We presume this is the expedition to which you refer, and you're right. While in the *Thurston* area a helo reconnaissance team discovered what appeared to be a strip of sea ice cutting between *Thurston Peninsula* and the Antarctic



HEARTS AND FLOWERS—Recruits at NTC, San Diego—in heart formation around their queen, Callie Moffitt—remind us that Valentine's Day is near.

continent, indicating *Thurston* was actually an island. The helo landed, and an investigation bore out what had been seen from the air.

When the 1960 group returned they brought with them much valuable geologic, biologic and oceanographic data, including an accurate map of 120 miles of the Eights Coast. For their trailblazing efforts the crews of both ships received the Navy Unit Citation. (Did you receive yours?) The citation credited them with many discoveries, but not the *Thurston Island* find.

A second expedition was expected to

break into the area the following year and the cartographers, always a very cautious group, had decided to wait for confirmation. After all it's often very difficult to tell the difference between land and sea when both are covered by a sheet of thick ice.

In 1961 *Glacier* and *Staten Island* were in company for the trip to the ice-bound Eights Coast. Armed with information developed by the previous expedition, *Glacier* and *Staten Island* broke through even farther. The 1961 group returned with new data, including results of an extensive investigation

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TRANSFER, PLEASE—USS Northampton (CC 1) stands by to receive stores transfer at sea from USS Alstede (AF 48). Ships serve as units of Atlantic Fleet.

which proved beyond any scientific doubt Thurston Peninsula was, in fact, an island.

Because the news was not published until after the return of the second expedition, the Staten Island group is often credited, by mistake, with the Thurston discovery. So, once more, Thurston Peninsula was discovered to be an island by Glacier and Burton Island in 1960. This fact was confirmed by Glacier and Staten Island in 1961.

Our records show there have been no expeditions into the area since 1961.—Ed.

This Duty Can Be a Dog's Life

SIR: Does the Navy use sentry dogs at any location and, if so, where? How would one apply for this type of duty?—W. H., YN2, USN.

• According to our information, the only Navy activity using sentry dogs is NAS Litchfield Park, Ariz.

We're not sure how you apply for this duty. First, we imagine, you must be a German shepherd with a pedigree. Probably you must satisfy some school requirements. Then, perhaps you should write to the Seavey dog detailer. But let us caution you—it's a dog's life.

On the people side of things, there is also a billet for one petty officer to train and supervise a number of non-rated dog handlers. To apply for this billet, you should write to EPDOConus. You should be eligible for Seavey before applying for this job and, in addition, any special skill you have in this area should be noted in the remarks section of your rotation data card.

There you have both sides of it, as we could not determine if you were inquiring on behalf of yourself or someone else.—Ed.

Proper Display of Flag

SIR: We have a question about the proper display of the ensign in our Reserve unit's drill hall. As you look from the back of the drill hall, should it be to your left or right? It's on the same level as a speaker and observer.—K. H., QM1, USN.

• It may be on either side depending upon the manner in which you display the flag. If you display it from a staff on the speaker's platform, the flag occupies the position of honor—that is the speaker's right as he faces the audience. (When we say the speaker's platform, we mean his area regardless if there is a raised platform or not.) Any other flag will occupy the speaker's left.

If the flag is displayed on a staff anywhere other than the speaker's platform, it will be placed in the position of hon-

Which Comes First in First Aid?

SIR: After working the Quiz Aweigh in the November issue, I flipped to the answers and discovered I'd been wrong on one question. You had asked in what order you should treat spiration, shock and bleeding, and I'd answered with choice A (bleeding, spiration, then shock. Your answer was C (respiration, bleeding, then shock).

This was fine—you can't win them all. But as I read the first aid article on page 28, guess what I found?

According to that page, the first step is to stop hemorrhage, the second is to insure the victim is breathing and the third is to prevent or minimize shock.

Come again?—G. W. M., ADR2, USN.

• Good grief! Small wonder you (and a tubful of other readers) were confused.

Since receiving your letter we've done some further research and can only conclude that the question in

Quiz Aweigh was loaded.

Obviously a guy who is not breathing and whose life's blood is oozing out is in pretty sad shape. Anyone having to deal with such a casualty would have to rely heavily on common sense, and his actions would undoubtedly be dictated largely by such circumstances as time, place, and assistance available.

There are, however, some guidelines which would be of assistance in his making a decision. If the victim is not breathing and his bleeding is not serious, it would probably be wise to restore the victim's breathing first.

You have to remember, however, that a man has only about five quarts of blood. If he loses a quart of it, he usually goes into shock, which deepens as the loss grows. Loss of half his blood will probably result in death.

With this in mind, you might decide the bleeding is serious enough to cause death by itself. The key words here are "serious bleeding." If this is

the case, stop the bleeding first. There is usually enough oxygen in the blood stream to sustain life for a while even though the patient isn't breathing.

Other letters called attention to the disagreement of naval manuals on the subject, and steps are being taken to correct them. The Standard First Aid Training Course (NavPers 10081-A), for instance is due for revision in 1965 and the subject will be clarified at that time.

The exam center also got wind of the problem. Unfortunately, the February exams are already assembled. However, if the question is asked in an ambiguous manner, a wrong answer won't be counted against you.

On examinations given after February, the question may be avoided or information on the seriousness of the bleeding will be given.

Thanks to you and our other readers for calling our attention to the matter via telephone, telegraph, letter and carrier pigeon.—Ed.

Ship Reunions

News of reunions of ships and organizations will be carried in this column from time to time. In planning a reunion, best results will be obtained by notifying the Editor, **ALL HANDS** Magazine, Room 1809, Bureau of Naval Personnel, Navy Department, Washington 25, D. C., four months in advance.

• **uss Richard W. Suesens** (DE 342)—A reunion has been scheduled for 6-8 August, in Columbus, Ohio. For details, write to Cal Krause, 422 S. Dewey Ave., Jefferson, Wis. 53549.

• **15th Seabees**—The eighth annual reunion will be held 30 July—1 August, at the Battery Park Hotel, Asheville, N. C. For particulars, write to Larry M. Cagle, P. O. Box 216, Clyde, N. C. 28721.

or at the right of the audience as they face the platform. And any other flag displayed should be placed on the audience's left.

And if you display the ensign flat, it should be above and behind the speaker. You'll find these guide lines in DNC 27, Annex A, Section 3, Para. K.—ED.

Relax—You're Still on Seavey

SIR: I have recently changed my rating from IC2 to AK2 because of my citizenship.

My sea duty began in November 1959, and as an IC2 I was on Seavey. How does my change in rating affect my eligibility for shore duty?—A. Y. I., AK2, USN.

• *You can look forward to going on the beach—you're still on Seavey.*

Once the Seavey-Shorvey section of BuPers has established the cut-off dates and compiled the lists of men eligible for orders ashore, there are very few reasons for which a name will be deleted. Or added, for that matter.

If you change your rating while on Seavey you will be moved to another rating list, but you will stay on Seavey.

Since you would be moved to a new list, however, your precedence would be re-computed.

If, on the other hand, you had not been on Seavey when you changed your rating, the situation would be quite different. As we said before, it's as difficult to be added to the list, once it's formed, as it is to be deleted.

Consequently, in that case you would not go on Seavey until the next time a cut-off date was announced—even if the difference in cut-off dates between ratings would make you eligible, time-wise, for Seavey in your new classification.

Incidentally, the same general rule holds true for change in pay grade as well as change in rating.—ED.

FROM THE SIDELINES

WHAT IS KARATE? One definition, we note, states that karate is the *art* of empty-hand fighting; that it is a martial art and not a sport. Those who practice karate (karatekas) are adamant about this point.

We would make an appropriate comparison here: In the days of the Knights of the Round Table, jousting was a form of combat (or "martial art"), but it was also a form of sport. During tournaments it was not intended that jousters would kill their opponents, and the same applies during a karate match today. So, though its masters describe karate as an art, we prefer—for our purposes—to call it "sport."

Sport or art, enthusiasm for

further to the grim humor surrounding this sport. This fellow would invite people he met ashore to visit his ship for a tour, which included an impressive karate demonstration. According to the story, this man "found it hard to change the impression that these people received of him—that of a mild-mannered office clerk." He often found himself apologizing for not looking like a "karate killer."

That's no way to gain popularity for a sport.

★ ★ ★

There's a right time and place for everything and—in spite of the fact that psychologists frown on it—that includes blowing your own horn. For that reason, BuPers is a pretty



karate is on the increase all over the Fleet, and justifiably so. Practicing or learning karate is an excellent way to condition one's body while enjoying competition with others.

Those who have become interested in karate are sometimes disturbed at the unfavorable opinion many people hold for it. It has gained wide reputation as a killing skill rather than an enjoyable sport. Sure, we chuckle at the image TV comedians and other funnymen have transmitted on this subject; after all, it is difficult to be serious about men breaking tiles over their heads and smashing their bare palms through bricks. But some of the worst publicity about karate comes from the karatekas themselves.

Only recently we received a true-to-form press release about a karate champ that adds

brassy place sports-wise. This past year's BuPers softball team finished another undefeated season in the local Navy-combined league and went on to become runners-up in the Washington, D. C., amateur softball association class B metropolitan tournament.

Our horn is particularly brassy when proclaiming this achievement because three **ALL HANDS** staffers were on the team—one of them, Jerry Wolff (our research editor), being the team coach and player/manager. Also included were (now-departed) Bud Register, JOC, and Don Flanagan, YN2. Trouble is, with all these trophies around we can hardly make our way to the sports desk to see what's happening in other areas.

Softball season will soon begin. How about it, BuPers?

—Bill Howard, JO1, USN

★ ★ ★ ★ TODAY'S NAVY ★ ★ ★ ★



SHE'S 21—USS *Haddo* (SSN 604) is twenty-first of Navy's nuclear attack subs. Commissioned in December 1964, *Haddo* is second U. S. sub to carry name.

SubFlot One Is a Mature 15

Submarine Flotilla One, stationed in San Diego, has celebrated its 15th anniversary. It was commissioned in November 1949 and designated as an operational command representing Commander Submarine Force, U. S. Pacific Fleet.

Today, SubFlot One consists of two submarine rescue ships, two tenders and 28 subs including nuclear powered *uss Scamp* (SSN 588), *Sculpin* (SSN 590) *Snook* (SSN 592), and *Permit* (SSN 594). Flotilla ships rotate between the West Coast and Seventh Fleet. They may be called upon to perform a number of jobs, including mining operations, amphibious warfare, reconnaissance and acting as

"enemy" subs during hunter-killer training maneuvers.

Intrepid Clock-Watchers

The captain of *uss Intrepid* (CVS 11) CAPT J. G. Smith knew his crew was good at rigging a flight deck barricade but to see just how good it was, he personally held the stop watch on the riggers without their knowing it.

The results of the captain's clock watching showed that 75 men set the 25 foot high net in place in 50 seconds. The next time, 40 men set it up in 49 seconds and, a week later, 60 crewmen rigged it in 45 seconds.

Intrepid's CO thinks his crew might have established a record.

BUILDERS OF THE NAVY

David G. Farragut went to sea as a child and grew up to become the Navy's first admiral. During the Civil War he proved himself a brilliant tactician and strategist comparable to England's Lord Nelson. In April 1862, after weeks of careful preparation, Farragut's fleet sailed up the Mississippi from the Gulf to capture New Orleans. The Confederates had considered their defenses below the city virtually impregnable but Farragut battered his way past Forts Jackson and St. Phillip, overwhelmed the defending Southern squadron and held the Crescent City helpless under his guns, forcing its submission.



More New Ships and Subs

Should you be keeping track of possible duty assignments, here are ten more you can add to your list. Six new ships have joined the Fleet, while three others were launched.

The submarine tender *uss Simon Lake* (AS 33) was commissioned at Puget Sound Naval Shipyard, Bremerton, Wash. Named for a major submarine contractor for the Navy in the 1920s, the ship is designed to provide mobile base support facilities for nuclear powered submarines including fleet ballistic missile type.

Simon Lake has a 642-foot length, an 85-foot beam, and she displaces 21,450 tons fully loaded. The keel was laid 7 Jan 1963, and she was launched 8 Feb 1964.

As the fourth *Polaris* submarine tender, *Simon Lake* is the first of a new class. She will be homeported in Charleston, S. C.

Also in Bremerton, the technical research ship *uss Belmont* (ATGR 4) was commissioned. Converted from a Victory hull, the ship is equipped to conduct technical research operations in support of the Navy's electronic research projects, such as satellite communications.

Before conversion, the ship was known as *ss Iran Victory*, a turbine propelled cargo ship built in 1944. She was placed in the reserve fleet between World War II and Korea, but was brought into service again in 1952. After Korean duty, she returned to the reserve fleet.

Belmont is the first ship to bear the name, and is named for cities in 29 states.

On the East Coast, the guided missile frigate *uss Belknap* (DLG 26) was commissioned at the Boston Naval Shipyard. She is the second ship to bear that name (the first was the destroyer DD 251).

Belknap is 547 feet long, has a beam of 55 feet and displaces 7900 tons fully loaded. She is armed with *Terrier* surface-to-air missiles, anti-submarine rockets (*Asroc*), drone antisubmarine helicopter (*Dash*), one dual 5-inch/54 caliber gun, two 3-inch/50 caliber guns and antisubmarine torpedoes.

Belknap's keel was laid 5 Feb 1962, and she was launched 20 Jul 1963. She is homeported in Norfolk, Va.

The nuclear powered fast attack submarine *uss Haddo* (SSN 604) was commissioned in Camden, N. J. A *Thresher* class submarine, *Haddo* is the second nuclear submarine to be built there; *uss Pollack* (SSN 603) was the first.

As with other submarines in her class, *Haddo* is equipped for quiet operating, deep diving and extended sonar ranging. She has a 275-foot length, a beam of 30 feet and a surface displacement of 3700 tons. She can cruise in excess of 20 knots.

The new *Haddo* is the second naval vessel to bear the name. The first, SS 255, was commissioned during World War II and sank 44,000 tons of enemy shipping and damaged an additional 14,500 tons.

In the launching news, the *Polaris* submarine *Lewis and Clark* (SSBN 644) slid down the ways at Newport News, Va.

Her keel was laid at Newport News 29 Jul 1963. With her launching, the total of fleet ballistic submarines comes to 27 commissioned, four launched but not commissioned and 10 under construction.

The guided missile frigate *Fox* (DLG 33) was launched at San Pedro, Calif. She is the third ship to bear the name of Gustavus Vasa Fox, appointed by President Abraham Lincoln as the first Assistant Secretary of the Navy.

The guided missile frigate *Horne* (DLG 30) was launched at the San Francisco Naval Shipyard. Her keel was laid 12 Dec 1962.

She is 533 feet long and has a beam of 33 and one-half feet. Her armament includes *Terrier* guided missiles, *Asroc*, two 3-inch/50 caliber guns and antisubmarine torpedoes.

Add these to your list: a guided missile frigate was launched and the 28th and 29th nuclear powered *Polaris* submarines have joined the Fleet.

The guided missile frigate *William H. Standley* was launched at Bath, Maine. The 7900-ton frigate is the first vessel to be named for the late William H. Standley who served as Chief of Naval Operations from 1933 to 1937 and Ambassador to Russia from 1942 to 1943.

Standley is 547 feet long and has a 54-foot, nine-inch beam. Her keel



NEW DESTROYER escort *Garcia* awaits commissioning ceremony at San Francisco. Ship is namesake of first Puerto Rican Medal of Honor winner, Marine PFC Fernando Garcia.

was laid 29 Jul 1963. She is a sister ship of *uss Belknap* (DLG 26), *Josephus Daniels* (DLG 27) and *Wainwright* (DLG 28).

The new frigate carries a dual *Terrier-Asroc* missile launcher, which is located forward. *Terrier* is a supersonic surface-to-air guided missile with a solid fuel rocket motor. *Asroc* is a homing torpedo that is boosted by a solid propellant rocket to its target area.

Standley also carries conventional

3-inch/50 caliber guns, a 5-inch/54 caliber gun, torpedo tubes and Drone Antisubmarine Helicopter (*Dash*). She is equipped with a helicopter landing platform aft and has the Naval Tactical Data System (NTDS) for use against air, surface and underwater targets.

The 28th and 29th nuclear powered fleet ballistic missile submarines were commissioned on the East Coast. *uss Sam Rayburn* (SSBN 635) joined the Fleet at Newport News, Va.

Sam Rayburn is named for the Texas lawmaker who served in the House of Representatives from 1913 until his death in 1961.

The submarine's keel was laid 3 Dec 1962, and she was launched 20 Dec 1963. She is capable of firing the *Polaris A-3* missile.

The 8000-ton *Polaris* submarine *uss Nathanael Greene* (SSBN 636) was commissioned at the Portsmouth, N.H., Naval Shipyard. With this ceremony, *Nathanael Greene* became the 50th nuclear-powered submarine to join the Navy since *uss Nautilus* (SSN 571) was commissioned 10 years ago.

The keel for *Nathanael Greene* was laid 21 May 1962, and she was launched on 12 May 1964.

As with other *Polaris* submarines, both *Sam Rayburn* and *Nathanael Greene* will be manned by two crews—Blue and Gold.

OLD-TIMER—*USS Peterson* (DE 152) has been on the Navy list since 1943, and is only ship of class active. She was converted for specialized ASW in '52.





MOMENT OF TRUTH—Rear Admiral Robert Goldthwaite takes close look at uniform of NAS Cecil Field sailor during annual Admin/Material Inspection.

Princeton Delivers Again

When heavy floods in Vietnam left thousands homeless last November, *uss Princeton* (LPH 5) was on hand to help.

Several relief and church agencies in Hong Kong gathered emergency supplies for the stricken families. Shortly thereafter *Princeton*, who happened to be in Hong Kong for a routine port call, was requested to deliver the goods via assault helicopter. High water had washed out roads and bridges in Vietnam, making overland transportation all but impossible.

During the following 24 hours *Princeton* Navymen and Marines loaded aboard over 600 tons of relief supplies including clothing, flour, soybeans, soybean oil and high protein wheat. In the ship's bakery the commissarymen turned to, producing several thousand loaves of bread for the flood victims.

On 15 November *Princeton* left Hong Kong and proceeded to a point off the Vietnamese coast, where the helos were launched.

The mercy missions were flown by Marine Medium Helicopter Squadron 162. Before coming aboard *Princeton* the squadron had served four months at a land base in Vietnam and, in 1963, had taken part in the relief flights to Haiti.

Busy Day in the Med

When it came time for *uss Wasp* (CVS 18) to get under way from Naples, there were 369 crew members missing. It wasn't because these men didn't want to get back to their ship—they couldn't. With high winds and rough seas, it was impossible for them to return in the small liberty boats.

The carrier sailors had taken shelter in three destroyers which were

CIRCUIT RIDER—Chaplain from *USS Ticonderoga* (CVA 14) is lowered to destroyer for religious services.



anchored in a more peaceful area behind the harbor's breakwater.

In spite of the minus-369 nose-count aboard *Wasp*, all the ships left on schedule. Once they had sailed out into calmer waters in the Mediterranean, two of the destroyers, *uss Charles S. Sperry* (DD 697) and *Samuel B. Roberts* (DD 823), highlined 250 carrier sailors back to their ship. The remaining 119 were flown from the third destroyer, *Barry* (DD 933), by helicopters from Anti-submarine Squadron 11.

It was quite a day for the destroyermen. They are not claiming a record, since in the Destroyer Navy even the jobs that are difficult and unusual (to others) are part of the routine.

Rankin a Hit in Spain

A funny thing happened to *uss Rankin* (AKA 103) during Operation Steel Pike I. It wasn't funny ha ha but funny wonderful.

Rankin served as flagship for Captain Ignacio Martel Viniegra of the Spanish Navy. CAPT Martel commanded the Steel Pike Northern Attack Group which was made up of Spanish sailors and marines embarked with U. S. Navymen in Spanish and United States ships.

The Spanish officers and enlisted men had only four days to become acquainted with United States ships and took complete charge of the Northern Attack Group which turned in a first-rate display of seamanship and amphibious assault adroitness.

During their duty on board *Rankin*, the executive officer of the Spanish force, Commander Lopez-Cortillo regaled the denizens of the wardroom with several masterpieces of Spanish cookery.

In other parts of the ship, U. S. sailors went all out to learn Spanish songs and even tried to make their American rock n' roll footwork obey the staccato rhythms of the flamenco and other Spanish dances.

During preliminary training, each Spanish ship in the force came alongside for an evening of exchange visits, meals and movies. U. S. crewmembers on board *Rankin* tangled with a Spanish team in a game of miniature basketball for which they used the well deck of a Spanish medium landing ship for a court.

Operation Steel Pike I, which was one of the largest joint amphibious exercises in recent years, was judged

to be a huge success from a military standpoint. *Rankin* and her crew of U. S. and Spanish Navymen helped make it a success from a standpoint of international friendship.

DesRon 12 Brightens Newport

The Navy has long been known for the helping hand which it extends to the people of other nations. But not as well publicized is the same type of assistance given at home.

In Newport, R. I., for example, the men of Destroyer Squadron 12 undertook the project of improving the city's Community Center.

The squadron's aid is similar to the assistance which Navymen have frequently given to the needy overseas. But in contrast to the help extended abroad which usually is a one-time undertaking, the Newport program has been established as a permanent endeavor.

The major phase of the Newport project is the restoration of the 265-year-old building which houses the Community Center. As you might expect, it's a large job, and the men of the nine ships in DesRon 12 have already devoted many hours to the project.

Men of *uss Richard E. Kraus* (DD 849) are giving the front entrance a new look, while both crews from *Compton* (DD 705) and *Kraus* are repairing the north entrance. *Davis* (DD 937) and *Hyman* (DD 732) crews are renovating the rest rooms. Men from *Stickell* (DDR 888) are trying their hand at remodeling the kitchen. *Massey's* (DD 778) crew is handling the general repair and the painting of the youth lounge, while *Purdy's* (DD 734) crew is revamping the center's craft rooms.

Outside the building, Navymen from *Basilone* (DD 824) are working on the playground and parking area and will improve the over-all landscaping around the community building.

But this work is only part of the help offered by the squadron. Another step has been taken. The squadron wives are providing additional guidance for the Center's children through volunteer workers. They have outlined plans for the Center's further improvement, such as increasing the number of supervisors and instructors and adding to the present limited supply of toys and kitchen utensils.



BIG TIME—Submariners gathered with Fleet Admiral Chester W. Nimitz at his San Francisco quarters recently represent 267 years of submarine service.

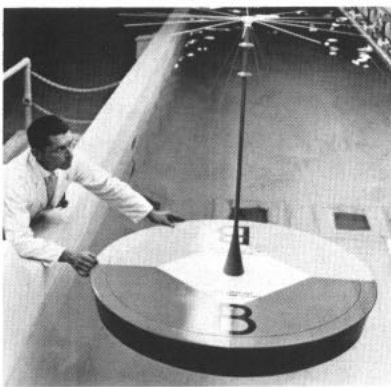
Away the Landing Party

Marines and sailors who make up *uss Bon Homme Richard's* (CVA 31) landing party spent a recent in-port period in Yokosuka, Japan, sharpening their land battle technique. *Bonnie Dick's* soldiers of the sea qualified on the rifle and pistol ranges and conducted a week of diversified military training at Mount Fuji, including a two-day traverse of the mountain.

The mission of a ship's landing party is to provide a unit organized, trained and equipped to conduct operations ashore as an independent force.

Training in the field, mountains or even the jungle is nothing new to

SCALE MODEL of oceanographic buoy floats in lab. Real buoy will send data ashore from its memory banks.



Bonnie Dick's landing party. During a recent visit to Subic Bay, Philippines, the group spent three days in the jungle learning survival techniques. Their chief instructor and guide during this period was a much-decorated Negrito jungle fighter of World War II.

During this period the party gathered and prepared their own food, plotted their way through the jungle and learned ambush techniques and how to manufacture and use the blow gun.

High Gearing in Sfax

The citizens of Sfax, Tunisia, knew a little more about the United States and the U. S. Navy after *uss Gearing* (DD 710) spent five days there.

Two days of the *Gearing* visit were devoted to open house during which 7000 Tunisians visited the ship to hear its history and mission explained to them in their own language via the ship's announcing system.

Educational materials provided by Project Handclasp were presented by *Gearing's* captain to Sfax city school officials. An encyclopedia and numerous secondary level texts were included in the package.

To reciprocate *Gearing's* hospitality, the Governor of the Sfax region sponsored an afternoon-long folk festival for *Gearing's* crew.



VERSATILE MK 46-0 torpedo can be launched from fixed wing aircraft (right), Asroc tubes as shown in USS Norfolk test launching (left), helicopters, and surface ship torpedo tubes. Torpedo is scheduled for Fleet in summer.

This Could Be a Blast, Man

The latest in antisubmarine torpedoes, the Mark 46, has completed its development program and is now in production. Scheduled to be in the Fleet this summer, the Mark 46 is the first Navy torpedo to use a solid rocket fuel system as its source of power.

It also uses several new concepts in design that give it greater speed, depth performance and maneuverability. When it enters the water, the propulsion system is activated with-

in half a second by a sea water battery; the torpedo then dives to a preset search depth.

When it reaches this depth, the torpedo follows a programmed search pattern to find its target by using either an active echo ranging or a passive listening method. When it locates the target, the torpedo pursues it until the target is destroyed. If somehow the target is lost during the pursuit, the torpedo returns to its search program to relocate it.

Producing approximately four

horsepower for each pound of engine weight, the engine is powerful enough to enable the torpedo to overtake the most elusive submarine target known.

The Mark 46 is the first antisubmarine warfare torpedo that can be launched in any of these four ways: From a fixed wing aircraft at speeds up to 400 knots, a helicopter (including *Dash*), surface ship torpedo tubes and antisubmarine rocket (*Asroc*).

Because of its precision design, one or more complete sections may be replaced if necessary.

The new torpedo consists of four major parts—guidance and control system, explosive system, propulsion system and accessory system.

The guidance system, which is located in the front, consists of a transducer, a transmitter and receiver, a control group with power supply, a computer, and an auto pilot. These electronics packages are separated by either a warhead or practice head. The center section contains the solid fuel and pressure generator while the afterbody contains the propulsion unit and accessory system.

A Whale of a Time on Maui

There was no blubbering on Maui during the recent whaling spree celebration—many thanks due to the crew of *uss Current* (ARS 22).

Everything was quite cheerful, as the *Currentmen*, impersonating a spirited band of pirates, invaded the town of Lahaina, and joined the locals

FUEL UP—USS *Truckee* (AO 147) is one of six largest fleet oilers built, with cargo capacity of over 150 thousand barrels of fuel oil, stored in 24 tanks.



in a traditional celebration commemorating 19th century days when whaling crews stopped here for shore leave.

The excitement and good times which resulted from these early visits stimulated the Maui's to carry on a traditional celebration long after the whaling crews stopped coming.

The costumed *Current* sailors, fast to absorb the spirit of the celebration, paraded up and down Lahaina's main streets, to the enjoyment of the islanders, tourists and other visitors.

Then they took part in a costume contest, in which they copped a \$25 first prize.

Other U. S. Navy visitors included *uss Fletcher* (DD 445) and *uss Sproston* (DD 577). Everyone had a whale of a time.

Platte Joins Over-25 Club

uss Platte (AO 24) has joined that extremely small group of ships which have been in commissioned active service for over 25 years. The fleet oiler celebrated her birthday in Long Beach Harbor on 1 Dec 1964, just across the bay from San Pedro where she had been commissioned a quarter-century before.

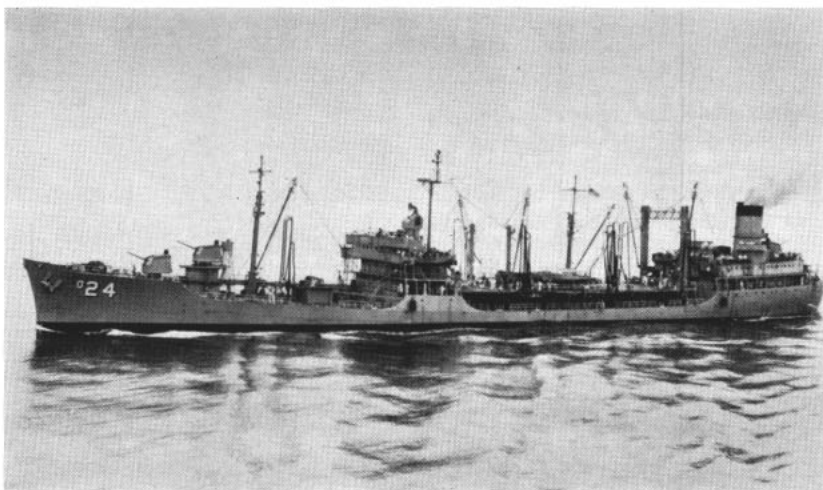
Platte has done some traveling over the years. A few days after the bombing of Pearl Harbor she left San Pedro, bound for Hawaii with a load of black oil. Between December 1941 and the end of the war she pumped nearly 5,000,000 gallons of oil during 1060 refueling operations and earned 10 engagement stars.

Supplies were at a premium, especially during the first days of the war, and the fleet oilers often carried more than fuel. *Platte* went into the yards, and a cargo deck was added. Thereafter, she brought food, clothing and other general supplies to the ships she refueled.

In 1944 the oiler joined Task Force 58 in a series of carrier strikes and was on hand when aircraft were launched toward Truk. She also participated in the first strikes on the Marianas and the occupation of Eniwetok. Always on the move, during an 11 day period she crossed the equator 14 times.

When offensive operations ceased on 15 Aug 1945, *Platte* was one of the first ships to anchor in Tokyo Harbor. By Christmas she was back home in San Pedro.

During the postwar period many of the Navy's ships were mothballed, but *Platte* continued to operate.



STILL ON THE JOB—*USS Platte* (AO 24) fleet oiler with Pacific Fleet has joined the small group of Navy ships that have had 25 years of continuous duty.

When the Korean war began she was still active and was ordered into action as part of the Seventh Fleet. Operating for 25 months off Korea and Formosa, she racked up four more engagement stars. Always near the action, during her last WestPac deployment she refueled ships in the South China Sea.

And Now It's Inner Space

Two men assigned to the Pacific Missile Range (PMR) have made a trip into space in a diving saucer.

It wasn't outer space but inner space that was being explored, and the vehicle that carried them was the DS-2, better known as the Cousteau Diving Saucer.

The dives were made off Santa Catalina Island.

Lieutenant John R. Elzenga, USN, PMR diving officer, made one dive and Tom Henebry, an engineering technician, the other. Pilot of the

DS-2 is Raymond Kientzy of France.

The mobile deep sea research vehicle is designed for exploring the ocean floor at depths of 1000 feet. The purpose of the dives was to demonstrate the capability of the deep submergence vehicle in the search and location of a component containing an underwater recovery aid.

During the dives, studies were also made to compare the operation of underwater detection signals at different frequencies and to collect data about ocean temperature and direction of current flow at various depths.

PMR will use the DS-2 vehicle this April to perform a pre-acceptance inspection of a complete oceanographic data collection buoy system in place, and to check the amount of marine fouling that has taken place in the San Nicholas Island (SNI) area.

BACK THEN—Old timer *Platte* is shown in the early days of her career refueling an aircraft carrier during World War II during operations in the Pacific.



Survival Is No Accident at Grosse Ile

It was a cold winter afternoon when the S-2F *Tracker* and the *Seabat* helicopter landed at Grosse Ile Michigan's U. S. Naval Air Station. The two men in each were looking forward to a hot cup of coffee soon after they landed. But coffee was not in their immediate future—a survival exercise was.

The four men who had just landed were the first to be snagged in a procedure which would eventually include every flying Navyman at NAS Grosse Ile. Before they had time to leave their planes, they were told they had crashed in a swampy area of northern Michigan and would have to hike two miles to higher ground. They could take whatever equipment they needed from their planes.

One of the men was declared to

have a broken arm which the other survivors had to put in splints at once, using whatever material was at hand.

To give the exercise an added touch of realism, an old aircraft fuselage was burned and the survivors were given hand extinguishers; told to put out the fire and salvage whatever supplies were inside.

After the fire was out and the supplies salvaged, the reluctant campers set out on foot for a wooded area on one side of NAS Grosse Ile.

While there was still light, they made a tepee of ripped parachutes; gathered ferns and underbrush for beds and enough firewood for the night.

Luckily for this party of crash

victims, they had brought enough food with them for a skimpy supper that night and a breakfast the next morning.

About 0800 the next morning, the theoretically downed fliers were rescued and the victims of another crash were led into the woods to await rescue.

Most of the crash victims spent a cold, miserable night. Some of the later crashers didn't have enough food and a few had to scrounge for water when they forgot to bring their canteens.

One thing was gained from their discomfort, however. If any of the men snagged for the survival exercise ever crashes for real, he will have a better idea of what he needs to stay alive while awaiting rescue.

Quick Thinker

Thanks to the quick thinking and heroism of Thomas H. Nohowec, AME2, and thanks also to the generosity of members of his squadron, seven Japanese families in Iwakuni are not as bad off as they might have been.

Early one morning while Nohowec was walking through the city he saw smoke ahead. He stepped up his pace and, as he arrived at the scene, found several homes already filled with smoke. From one of the buildings, Nohowec heard the faint wailing of a child. He ran inside, grabbed the child and brought him safely outside.

He helped other families salvage some of their personal belongings and, when the fire department arrived, Nohowec manned one of the hoses and helped put out the blaze.

When the news reached Nohowec's squadron, the men responded by taking up a collection to aid the stricken families. A few days after the tragedy, the commanding officer of Patrol Squadron One and Nohowec presented the Deputy Mayor of Iwakuni with 36,000 yen (equivalent to \$100) which was divided among the seven homeless families.

Three Years Accident Free

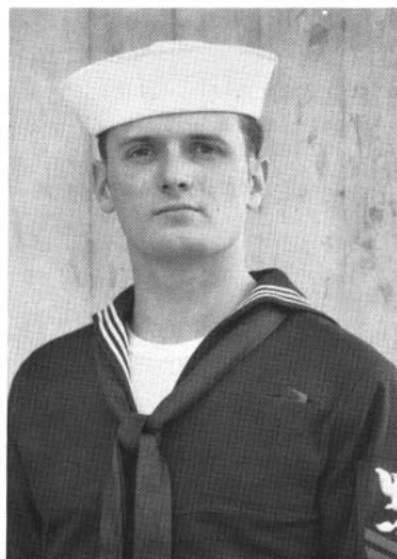
The year 1964 ended for Attack Squadron 112 with a quiet bang—and a lot of cheers. It had just completed three years of operational flying without an accident.

During these three years the

Squadron has made six short-duration carrier deployments, four weapons deployments and two full-length cruises to the Western Pacific aboard USS *Kitty Hawk* (CVA 63), logging over fourteen thousand flight hours, 4432 total carrier landings, including 1042 night carrier landings.

Three years of accident-free flying is not an accident. Many hours of quality-controlled workmanship, strict adherence to standardized practices, systematic ground training, conscientious preflighting of aircraft, a final line-check before

FIREFIGHTER — Thomas Nohowec, AME2, saved child from flaming house, fought blaze with firemen.



the aircraft departs the line, and compliance with ordinance safety precautions, add up to make accident free flight hours.

VA 112 is proud of its three-year record but the real pay-off is in increased operational readiness and in the ability to uphold the squadron motto: "Custode Pacis Armis", Custodian of the Arms of Peace.

LT. S.H. Brobston, USNR

But It Did Happen

Possibly Airman Apprentice Lowell G. Sanders read the "man overboard" article in *ALL HANDS* safety and survival issue. If so, he may have—like so many of us—shrugged and thought "It can't happen to me."

But it did.

Navyman Sanders, driving an aircraft tow tractor aboard USS *Intrepid* (CVS 11), was tossed overboard in the dark morning hours recently when the tractor skidded out of control and hit the catwalks along the edge of the flight deck.

Intrepid was engaged in antisubmarine operations. The impact of the crash hurled Sanders clear of the vehicle, but out and down 60 feet to the rough sea.

During the first seconds Sanders was in the drink, a methodical chain of events had begun aboard *Intrepid*. A plane spotter saw the vehicle crash, tossed his flight deck wands into the water after Sanders and passed the word. Two signal-

men heard Sanders hit the water. One alerted the navigation bridge and the other snapped on a search light.

The OOD ordered the commencement of a turn to the right. Near the fantail another crewman tossed a sonobuoy overboard.

The life buoy watch saw Sanders off the fantail and tossed two life rings toward him.

Two helicopters—airborne for the ASW exercises—were ordered to the area. And *uss Bordelon* (DD 881), assigned as primary rescue ship during the routine exercise, moved into the area with her search lights scanning the water.

The helos moved out of the area temporarily so *Bordelon's* crew could listen for a call from Sanders. Sanders saw the copters pass overhead and waved to them, but he was not spotted. He believed his last hope was gone.

But, soon afterwards, one helo returned, hovering at low altitudes. The co-pilot saw a head bobbing above a wave. A rescue seat was lowered to the exhausted airman in the sea below.

Forty-five minutes after his ordeal began, Sanders was back aboard his ship, with a mild case of over-expos-



SPANISH GUITAR is part of garb for Marine PFC Rafael Alarcon, host of Latin American show on station KEAR aboard ASW carrier *USS Kearsarge*.

ure. When the report went out, a spontaneous cheer resounded throughout the carrier.

It was he said, an "awful experience," as he took a hot shower (fresh water, of course).

Oklahoma City in Malaysia

When *uss Oklahoma City* (CLG 5) steamed into Port Swettenham, Malaysia, she brought with her thousands of pounds of toys, clothing, books and other donations made for Project Handclasp for distribution to hospitals, orphanages and schools of Malaysia's capital city, Kuala Lumpur.

For the crew, the visit to Port Swettenham meant liberty in the port and the nearby capital city. The crew also visited the British Naval Base in Singapore and snapped hundreds of rolls of film recording Singapore's Tiger Balm Garden, temples and street scenes.

For the sports-minded, there were basketball and softball games and a bowling tournament scheduled with local teams.

The ship's officers were kept busy with official calls to U. S. and Malaysian civil and military officials.

While the ship was open to the public at Port Swettenham, 13,000 Malaysians came aboard.

When the ship moved to Singapore, thousands more came aboard.

At the end of her visit thousands of people were a little happier for their handclasp with the U. S.

Anyone for Bagpipes?

When it comes to pastimes, each person in the Navy has his favorite. Some like to watch television, others enjoy reading a good book—and sports are a popular occupation. Some have more individual off-duty interests. There is, for example, an officer who lists bagpipe playing as his hobby.

Captain Charles H. Carr, commanding officer of the fleet oiler *uss Elokomin* (AO 55), doesn't give any specific reason for taking up this particular instrument. Bagpipe music always did appeal to him, he says. Although CAPT Carr admits there is Scottish blood in him, he dismisses any possibility that his love for the pipes is inherited.

It was only eight years ago when the musical CO transferred from the listener to the performer status. Attached to an admiral's staff in London, he bought his first set of bagpipes. Through a lot of practice and repeated trips to Scotland, CAPT Carr was able to master the difficult art of pipe playing.

After playing for a friend in Edinburgh, he recalls, his friend smiled and told him he had started 30 years too late. In Scotland, the boys are nine or 10 years of age



SELF-MADE HIGHLANDER CAPT. Charles H. Carr plays bagpipes in spare time aboard *USS Elokomin*.

when they start to study the instrument.

But it wasn't long before the captain's interest and ability in pipes soon became well known in Edinburgh, and he was invited to join the Eagle Pipers, a Scottish bagpipe society. By the time he assumed command of *Elokomin*, CAPT Carr had acquired enough experience and Highland paraphernalia that he would be welcomed in almost any bagpipe organization.

Although the pipes are not exactly common in the Navy, CAPT Carr reveals that he is not alone. Among others, Marine Captain James Toth, commanding officer of the Marine detachment in the cruiser *uss Newport News* (CA 148), is also an accomplished bagpiper.

When the cruiser comes alongside the oiler for refueling, it's quite an acoustical experience. The two self-made Highlanders put on a musical production fit for any audience.

GEMINI ASTRONAUTS will be rocket-powered. The Air Force has developed a Buck Rogers rocket packet which the spacemen will carry with them when they leave their orbiting capsules.

The package, which consists of a combination back and chest pack, should allow the astronaut to leave the capsule on independent flights up to an hour in duration. The first Gemini spacemen, however, will make only short excursions with the packs, just long enough to give them confidence in the operation. During the original flights they will be attached to the mother craft by a 200- to 300-foot safety line.

In addition to the hydrogen peroxide propulsion unit, the packs contain oxygen, telemetry, electrical power and stabilization systems. On earth the combination chest and back packs weigh a total of 200 pounds. In space they will be weightless.

Ultimately, astronauts will probably become proficient in flying with the packs and will use them while assembling and repairing space stations and satellites.

The astronauts will guide themselves by means of six switches which control: On, off and standby for the stabilization system; pitch and yaw; roll; translation control for up, down, forward and backward; high-low thrust; emergency switch for the stabilization system. An alarm signal is also included, and a beeping tone will be emitted in case of system failure.

The packs have been under development by the Air Force since 1961.

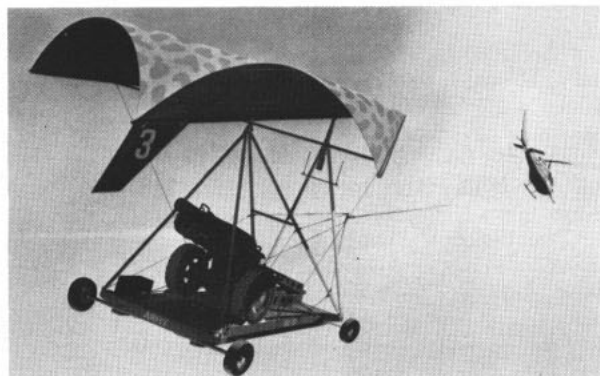
★ ★ ★

A LIGHTWEIGHT MEDICAL laboratory weighing only 30 pounds has been developed by the Army. It will first be used by special forces medical personnel engaged in civic action programs. Using the kit, Army medics can promptly identify local health problems.

The kit consists of a lightweight nylon fabric case containing a microscope, centrifuge, drugs and reagents necessary for performing basic laboratory tests.

The package measures 10 by 12 by 15 inches and can

COAST GUARD icebreaker *Northwind* stabs through ice-jammed East Siberian Sea on oceanographic mission.



ARMY 'KITE'—Flex wing glider, called 'LUG,' is designed to deliver high priority cargoes to remote areas.

be carried on a man's back. Parachute drops from 40,000 feet will not harm the contents and, should the lab land in the water, it will float. It can be weighted with rocks and cached underwater for as long as two weeks without leaking.

Environmental testing has been completed by the Army and service tests are now being conducted in the field. Army units will begin receiving the kits about June 1965.

The experiments proved that a trained man, equipped with the kit, could perform routine urinalysis (including microscopic examination of centrifugal sediment), obtain specific gravity readings, prepare and examine Gram stain and Wright's stain in suitable biological specimens, determine hemoglobin and make differential blood counts.

★ ★ ★

AIR FORCE PILOTS, who would face the hazard of flash blindness near the area of a nuclear explosion, may soon find a new type of windshield in their aircraft.

The windshield, designed to darken instantaneously if a nuclear device is exploded nearby, would be made of what are termed "photochromic" materials. The company awarded the development contract for the windshield has already developed a special type of goggles for the Air Force, using similar materials.

The goggles darken when exposed to ultraviolet light, then clear when the radiation lessens.

If a nuclear device explodes near the aircraft—during a low-level attack, for example—a sensor unit would detect the flash and trigger a special set of flash tubes directed into the windshield.

The photochromic plates in the windshield react by darkening instantly—the process taking only a fraction of a second.

Then the windshield would begin to clear, returning to normal after the flash subsides.

★ ★ ★

NOW THAT THE Air Force recently received a new-type aircraft, the C-141 Starlifter, cargo, as well as passengers, may be transported by jet in the near future.

Developed by the Air Force Systems Command and a civilian company, this new plane will increase the capability of the Military Air Transportation Service



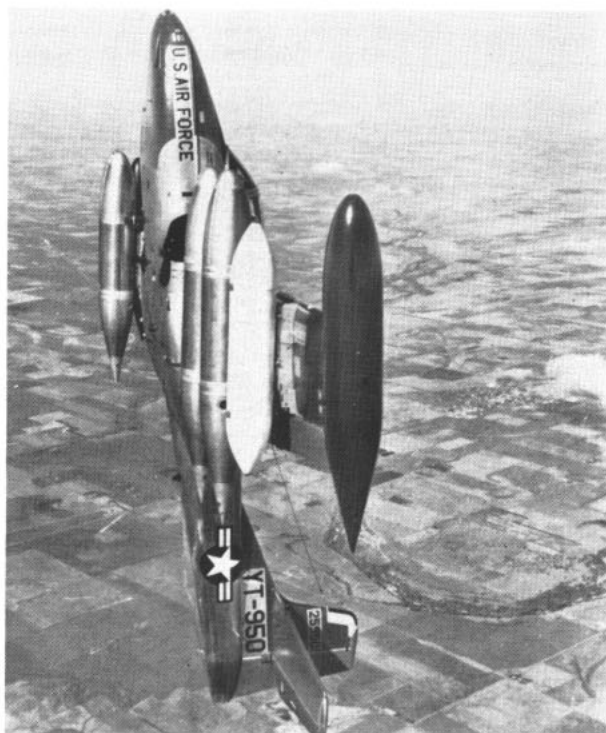
LIGHT bombardment plane, Air Force B-26K, can carry four tons of ordnance under wings besides bomb bay payload.

force to move combat troops and their equipment any place in the world on short notice. The C-141 eventually will replace most of the conventional (non-jet) transports that are now in MATS.

The Starlifter can transport 154 troops or a combination of men and supplies. In addition, it can cross the ocean non-stop at more than 500 miles per hour. The 145-foot fuselage will accommodate 70,000 pounds. And the aircraft takes off in a shorter distance than any other jet transport. With this capability, the C-141 has 1850 airports around the world at which it can land.

Presently the Starlifter is at the MATS Flight and Crew Training Center, Tinker AFB, Oklahoma, to provide training for MATS crews. There are eight others built which are undergoing a series of extensive tests.

STRAIGHT UP—High degree of maneuverability is shown by Air Force YAT-37D twin jet, which can fly above 450 miles per hour or below 125 miles per hour as needed.



ARMY AVIATORS flying the UH-1D helicopter have broken four world records for speed and altitude, one of which was previously held by the USSR. The top speeds and heights were reached by test pilots at Fort Worth, Texas.

In addition to breaking the four existing records, the helo pilots established seven more as first entries in new categories.

When official recognition is obtained, the U. S. will hold 32, or 57 per cent, of the world's 56 helicopter records. Russia holds 15 (27 per cent), France eight (14 per cent) and Czechoslovakia one (two per cent).

All four records broken were in class E-1D, which includes helos weighing between 3858 and 6614 pounds.

The first of the four was broken on 20 November, when an Army major piloted his craft 168.98 mph on the 100 kilometer course. The earlier speed record set by USSR aircraft, was 157.714 mph.

On 23 November the helo bettered the world speed record of 148.449 mph for the 500-kilometer course by averaging 176.8 mph.

On 25 November the helo exceeded the record speed of 158.037 mph for three kilometers establishing a new mark at 180.14 mph.

The fourth record, in altitude, was broken on 11 December when the copter reached an altitude without payload of 35,150 feet. The earlier altitude, reached by an H-43B, was 32,840 feet.

★ ★ ★

A SMALL HELICOPTER capable of flying 200 mph is being evaluated by the Army. The 3500-pound XH-51A, (its rigid rotor has been under development for six years) will be used to collect data needed to design future performance rotary wing aircraft.

The helo features a rigid rotor system which gives an unusually high degree of stability and permits improved maneuverability. Most helos have hinged rotors which produce a teetering or flapping effect and require complex control systems, but the blades of the XH-51A, cantilevered from the hub, are attached solidly to the mast.

The 200-mph speed, established by the helo on a test run, is a record for copters weighing under five tons.

The Army is also designing a compound helicopter which will have wings and a jet engine in addition to the rigid rotor system. The compound version is expected to exceed an air speed of 230 mph.

Here's How to Keep Well

Whether or not you check out a correspondence course is strictly up to you. However, any Navyman who is interested in getting ahead will find it a smart thing to do, because basically an enlisted correspondence course is simply a set of questions dealing with information contained in the Navy Training Courses. The purpose of these questions is to help you get the most out of your study.

This is done by pointing out important definitions, the reasons things are done in one way rather than another, the cause and effect of various

actions, the similarity or difference of certain objects, recognizing and identifying mistakes, and common principles which apply to two or more situations.

When you enroll in a correspondence course, which active Navyman can do through their local commands, you get a textbook (usually one of the Navy's blue books—green, if you are an aviator) and an assignment booklet.

The assignment booklet gives you study instructions and other information which will help you study

the blue book. There are also questions (usually multiple choice) on the assignment, together with an answer sheet, on which you mark what you think to be the answer.

The questions in the assignment booklet are not tests, only study aids. You can answer them with your book open, and probably should, in order to get the most out of the questions.

When you get all the questions answered, go over the assignment again to make sure you did your best.

When you mail your assignment for grading, it will be individually

★ *ABC Warfare Defense*, NavPers 91212; 4 assignments, 8 retirement points.

★ *Aerographer's Mate 3 & 2*, NavPers 91664-2; 13 assignments, 39 retirement points.

★ *Aerographer's Mate 1 & C, Vol 1*, NavPers 91602; 4 assignments, 12 retirement points.

★ *Aerographer's Mate 1 & C, Vol. 2*, NavPers 91603; 7 assignments, 21 retirement points.

★ *Air Controlman 1 & C*, NavPers 91677-A; 4 assignments, 12 retirement points.

★ *Airman*, NavPers 91600-A; 10 assignments, 30 retirement points.

★ *Aviation Antisubmarine Warfare Technician 3 & 2*, NavPers 91577; 10 assignments, 30 retirement points. *Confidential*.

★ *Aviation Boatswain's Mate "H," 3 & 2*, NavPers 91636-1A; 3 assignments, 9 retirement points.

★ *Aviation Boatswain's Mate "H," 1 & C*, NavPers 91638-1; 3 assignments, 6 retirement points.

★ *Aviation Boatswain's Mate "E," 3 & 2*, NavPers 91678; 8 assignments, 24 retirement points.

★ *Aviation Boatswain's Mate "E," 1 & C*, NavPers 91672; 5 assignments, 10 retirement points.

★ *Aviation Boatswain's Mate "F," 3 & 2*, NavPers 91679; 7 assignments, 21 retirement points.

★ *Aviation Boatswain's Mate "F," 1 & C*, NavPers 91680; 4 assignments, 12 retirement points.

★ *Aviation Electrician's Mate 3 & 2*, NavPers 91610-1B; 14 assignments, 42 retirement points.

★ *Aviation Electrician's Mate 1 & C*, NavPers 91611-2; 8 assignments, 24 retirement points.

★ *Aviation Electronics Technician 3 & 2*, NavPers 91613-1A; 15 assignments, 30 retirement points. *Confidential*.

★ *Aviation Electronics Technician 1 &*

C, NavPers 91615-B; 11 assignments, 33 retirement points.

★ *Aviation Fire Control Technician 3*, NavPers 91633-1; 12 assignments, 36 retirement points. *Confidential*.

★ *Aviation Fire Control Technician 2*, NavPers 91634-2; 11 assignments, 33 retirement points. *Confidential*.

★ *Aviation Fire Control Technician 1 & C*, NavPers 91635-1; 7 assignments, 21 retirement points.

★ *Aviation Machinist's Mate 3*, NavPers 91597-B; 6 assignments, 18 retirement points.

★ *Aviation Machinist's Mate 2*, NavPers 91598-1A; 13 assignments, 39 retirement points.

★ *Aviation Machinist's Mate 1 & C*, NavPers 91599; 5 assignments, 15 retirement points.

★ *Aviation Machinist's Mate "J," 3 & 2*, NavPers 91582; 8 assignments, 24 retirement points.

★ *Aviation Machinist's Mate "J," 1 & C*, NavPers 91587; 8 assignments, 24 retirement points.

★ *Aviation Machinist's Mate "R," 1 & C*, NavPers 91608-1; 5 assignments, 15 retirement points.

★ *Aviation Ordnanceman 3 & 2*, NavPers 91665-1; 11 assignments, 22 retirement points.

★ *Aviation Ordnanceman 1 & C*, NavPers 91662-1; 7 assignments, 21 retirement points.

★ *Aviation Storekeeper 3 & 2*, NavPers 91674-B; 8 assignments, 24 retirement points.

★ *Aviation Storekeeper 1 & C*, NavPers 91675-1; 7 assignments, 14 retirement points.

★ *Basic Military Requirements*, NavPers 91202-1A; 6 assignments, 12 retirement points.

★ *Blueprint Reading and Sketching*, NavPers 91223-3; 3 assignments, 9 retirement points.

★ *Boatswain's Mate 3 & 2*, NavPers

91243-2B; 8 assignments, 16 retirement points.

★ *Boatswain's Mate 1 & C*, NavPers 91245-2B; 4 assignments, 12 retirement points.

★ *Boilermaker 1 & C*, NavPers 91515-A; 10 assignments, 30 retirement points.

★ *Boilerman 3 & 2*, NavPers 91512-3; 6 assignments, 12 retirement points.

★ *Boilerman 1 & C*, NavPers 91514-2B; 10 assignments, 20 retirement points.

★ *Builder 3 & 2*, NavPers 91584-2; 6 assignments, 18 retirement points.

★ *Builder 1 & C*, NavPers 91586-1B; 7 assignments, 21 retirement points.

★ *Commissaryman 3 & 2*, NavPers 91441-1C; 4 assignments, 8 retirement points.

★ *Commissaryman 1 & C*, NavPers 91443-2A; 3 assignments, 6 retirement points.

★ *Communications Technician "M," 3 & 2*, NavPers 91557-A; 7 assignments, 21 retirement points.

★ *Communications Technician "M," 1 & C*, NavPers 91561; 7 assignments, 21 retirement points. *Confidential, modified handling*.

★ *Communications Technician "A," 3 & 2*, NavPers 91558; 7 assignments, 14 retirement points.

★ *Communications Technician "A," 1 & C*, NavPers 91560; 5 assignments, 10 retirement points.

★ *Communications Technician "I," 3 & 2*, NavPers 91572; 6 assignments, 18 retirement points. *Confidential*.

★ *Communications Technician "R," 3 & 2*, NavPers 91567; 6 assignments, 18 retirement points. *Confidential*.

★ *Communications Technician "O," 3 & 2*, NavPers 91547; 6 assignments, 18 retirement points.

★ *Communications Technician "T," 3 & 2*, NavPers 91559; 6 assignments, 18 retirement points.

★ *Construction Electrician 3 & 2*, Nav-

Informed About Your Job

scored. Your answer sheet will be returned to you, and, if you missed a question, references will be given to help you correct it. Your grade on the assignment will also be given.

Enlisted Correspondence Courses for Regular Navy personnel and Reservists on active duty usually will be administered and graded locally.

Where the course is to be handled locally, you should submit your application on *Enlisted Correspondence Course Application—Local Administration*, NavPers Form 231, and for-

ward it to the Correspondence Course Center via your CO.

In commands where it is not practical to administer the courses locally, applications should be submitted on NavPers Form 992. In this instance, your CO will forward the application to the Correspondence Course Center requesting that the Center administer and grade the course. Your division officer or education officer can tell you which form to use.

You will note that this list includes the number of retirement points credited. This does not (repeat

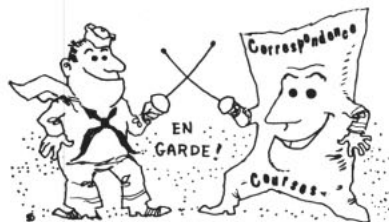
NOT) apply to Regular Navymen or Reservists on active duty. It does apply to inactive Reservists. We are including the retirement credits for the benefit of ALL HANDS readers who are in the inactive Reserves, and also to give some idea of the relative extent of subject matter of individual courses.

You can only take one course at a time—don't go overboard. First step is to see your education officer, division officer, or personnel officer.

Here is a list of correspondence courses now available:

- Pers 91569-2A; 6 assignments, 18 retirement points.
- ★ *Construction Electrician 1 & C*, NavPers 91571-1D; 6 assignments, 18 retirement points.
- ★ *Constructionman*, NavPers 91562-1C; 5 assignments, 15 retirement points.
- ★ *Construction Mechanic 3 & 2*, NavPers 91579-1B; 9 assignments, 27 retirement points.
- ★ *Construction Mechanic 1 & C*, NavPers 91581-2A; 8 assignments, 24 retirement points.
- ★ *Aviation Structural Mechanic "E," 3 & 2*, NavPers 91622-1; 7 assignments, 21 retirement points.
- ★ *Aviation Structural Mechanic "E," 1 & C*, NavPers 91366; 5 assignments, 10 retirement points.
- ★ *Aviation Structural Mechanic "S," 3 & 2*, NavPers 91364; 4 assignments, 12 retirement points.
- ★ *Aviation Structural Mechanic "S," 1 & C*, NavPers 91650-1; 7 assignments, 14 retirement points.
- ★ *Aviation Structural Mechanic "H," 3 & 2*, NavPers 91365; 6 assignments, 18 retirement points.
- ★ *Aviation Structural Mechanic "H," 1 & C*, NavPers 91367; 6 assignments, 18 retirement points.
- ★ *Basic Electricity, Part I*, NavPers 91224-B; 6 assignments, 18 retirement points.
- ★ *Basic Electricity, Part II*, NavPers 91226; 5 assignments, 15 retirement points.
- ★ *Basic Hand Tools*, NavPers 91228-1D; 5 assignments, 10 retirement points.
- ★ *Basic Machines*, NavPers 91230-D; 3 assignments, 6 retirement points.
- ★ *Damage Controlman 3 & 2*, NavPers 91544-2A; 5 assignments, 15 retirement points.
- ★ *Damage Controlman 1 & C*, NavPers 91546-1B; 6 assignments, 18 retirement points.
- ★ *Dental Technician, General, 3 & 2*, NavPers 91681-1; 7 assignments, 21 retirement points.
- ★ *Dental Technician, General, 1 & C*, NavPers 91682-1; 5 assignments, 15 retirement points.
- ★ *Dental Technician, Prosthetic, 3 & 2*, NavPers 91686-1B; 4 assignments, 12 retirement points.
- ★ *Dental Technician, Prosthetic, 1 & C*, NavPers 91687-1B; 5 assignments, 15 retirement points.
- ★ *Dental Technician, Repair*, NavPers 91689-1B; 5 assignments, 15 retirement points.
- ★ *Disbursing Clerk 3 & 2*, NavPers 91436-3A; 7 assignments, 14 retirement points.
- ★ *Disbursing Clerk 1 & C*, NavPers 91438-3; 3 assignments, 9 retirement points.
- ★ *Draftsman 3*, NavPers 91487-E; 7 assignments, 21 retirement points.
- ★ *Draftsman 2*, NavPers 91488-D; 6 assignments, 18 retirement points.
- ★ *Draftsman 1 & C*, NavPers 91489-A; 5 assignments, 15 retirement points.
- ★ *Electrician's Mate 3 & 2*, NavPers 91524-1B; 6 assignments, 18 retirement points.
- ★ *Electrician's Mate 1 & C*, NavPers 91526-1; 4 assignments, 12 retirement points.
- ★ *Electronics Technician 3*, NavPers 91373-2B; 9 assignments, 27 retirement points.
- ★ *Electronics Technician 2, Vol. 1*, NavPers 91374-2A; 9 assignments, 27 retirement points.
- ★ *Electronics Technician 2, Vol. 2*, NavPers 91375-1; 9 assignments, 27 retirement points. *Confidential*.
- ★ *Electronics Technician 1 & C*, NavPers 91376-B; 8 assignments, 24 retirement points. *Confidential*.
- ★ *Engineering Aide 3 & 2*, NavPers 91564-2; 14 assignments, 28 retirement points.
- ★ *Engineering Aide 1 & C*, NavPers 91566-2; 4 assignments, 8 retirement points.
- ★ *Engineman 3 & 2*, NavPers 91519-2; 9 assignments, 18 retirement points.
- ★ *Engineman 1 & C*, NavPers 91521-D; 7 assignments, 21 retirement points.
- ★ *Enlisted Transfer Manual*, NavPers 91423; 3 assignments, 6 retirement points.
- ★ *Equipment Operator 3 & 2*, NavPers 91574-2A; 5 assignments, 15 retirement points.
- ★ *Equipment Operator 1 & C*, NavPers 91576-2; 3 assignments, 9 retirement points.
- ★ *Field Manufacture of Industrial Gases*, NavPers 91505; 12 assignments, 48 retirement points.
- ★ *Fire Control Technician 3*, NavPers 91339-1; 6 assignments, 18 retirement points.
- ★ *Fire Control Technician 2*, NavPers 91340-1; 6 assignments, 18 retirement points.
- ★ *Fire Control Technician 1 & C*, NavPers 91346-1; 9 assignments, 27 retirement points.
- ★ *Fireman*, NavPers 91500-2B; 5 assignments, 10 retirement points.
- ★ *Gunner's Mate 3*, NavPers 91354-B; 9 assignments, 27 retirement points.
- ★ *Gunner's Mate 2*, NavPers 91355-1C; 7 assignments, 21 retirement points.
- ★ *Gunner's Mate "M," 1 & C*, NavPers 91380; 8 assignments, 24 retirement points. *Confidential*.
- ★ *Gunner's Mate "T," 1 & C*, NavPers 91378; 4 assignments, 12 retirement points. *Confidential, restricted data*.
- ★ *Gunner's Mate "T," 3 & 2*, NavPers 91377-A; 8 assignments, 24 retirement points. *Confidential, restricted data*.
- ★ *Gunner's Mate "G," 1 & C*, NavPers 91357-1; 5 assignments, 15 retirement points.
- ★ *Hospital Corpsman 3 & 2*, NavPers 91669-2; 5 assignments, 15 retirement points.
- ★ *Hospital Corpsman 1 & C*, NavPers

- 91671-1; 8 assignments, 15 retirement points.
- ★ *Hospitalman*, NavPers 91667-1B; 4 assignments, 8 retirement points.
 - ★ *I.C. Electrician 3*, NavPers 91528-D; 5 assignments, 15 retirement points.
 - ★ *I.C. Electrician 2*, NavPers 91529-D; 9 assignments, 27 retirement points.
 - ★ *I.C. Electrician 1 & C*, NavPers 91531-C; 4 assignments, 12 retirement points.
 - ★ *Instrumentman 3 & 2*, NavPers 91383-C; 3 assignments, 9 retirement points.
 - ★ *Instrumentman 1*, NavPers 91384-B; 4 assignments, 16 retirement points.
 - ★ *Instrumentman, Chief*, NavPers 91385-B; 3 assignments; 9 retirement points.
 - ★ *Journalist 3 & 2*, NavPers 91452-1; 5 assignments, 10 retirement points.
 - ★ *Journalist 1 & C*, NavPers 91453; 3 assignments, 6 retirement points.
 - ★ *Lithographer 3 & 2*, NavPers 91471-1; 7 assignments, 21 retirement points.
 - ★ *Lithographer 1 & C*, NavPers 91475-1B; 5 assignments, 15 retirement points.
 - ★ *Machine Accountant 3 & 2*, NavPers 91274; 5 assignments, 15 retirement points.
 - ★ *Machine Accountant 1 & C*, NavPers 91275; 4 assignments, 12 retirement points.
 - ★ *Machinery Repairman 3 & 2*, NavPers



- 91507-2; 8 assignments, 24 retirement points.
- ★ *Machinery Repairman 1 & C*, NavPers 91509-1A; 4 assignments, 12 retirement points.
 - ★ *Machinist's Mate 3 & 2*, NavPers 91502-2; 8 assignments, 16 retirement points.
 - ★ *Machinist's Mate 1 & C*, NavPers 91504-C; 10 assignments, 30 retirement points.
 - ★ *Mathematics, Vol. 1*, NavPers 91219-1A; 5 assignments, 15 retirement points.
 - ★ *Mathematics, Advanced, Vol. 1*, NavPers 91221-F; 6 assignments, 18 retirement points.
 - ★ *Mathematics, Part 3*, NavPers 10450; 14 assignments, 42 retirement points. This is an officer/enlisted course.
 - ★ *Military Requirements for Petty Officers 3 & 2*, NavPers 91206; 5 assignments, 15 retirement points.
 - ★ *Military Requirements for Petty Officers 1 & C*, NavPers 91207-C; 4 assignments, 12 retirement points.
 - ★ *Mineman 3 & 2*, NavPers 91335-2; 6

- assignments, 12 retirement points. *Confidential.*
- ★ *Mineman 1 & C, Vol. 1*, NavPers 91336-1; 5 assignments, 15 retirement points.
 - ★ *Mineman 1 & C, Vol. 2*, NavPers 91337-1A; 6 assignments, 18 retirement points. *Confidential.*
 - ★ *Missile Technician 3 & 2*, NavPers 91360-1; 6 assignments, 18 retirement points.
 - ★ *Missile Technician 1 & C*, NavPers 91361; 9 assignments, 27 retirement points. *Confidential.*
 - ★ *Molder 3 & 2*, NavPers 91554-1A; 4 assignments, 12 retirement points.
 - ★ *Molder 1 & C*, NavPers 91556-1; 8 assignments, 24 retirement points.
 - ★ *Naval Electronics, Part I*, NavPers 10445; 15 assignments, 30 retirement points. This is an officer/enlisted course.
 - ★ *Naval Electronics, Part II*, NavPers 10446; 10 assignments, 20 retirement points. *Confidential.* This is an officer/enlisted course.
 - ★ *Naval Electronics, Part III*, NavPers 10447; 7 assignments, 14 retirement points. *Confidential.* This is an officer/enlisted course.
 - ★ *Opticalman 3, Vol. 1*, NavPers 91387-D; 4 assignments, 12 retirement points.
 - ★ *Opticalman 3, Vol. 2*, NavPers 91388-C; 5 assignments, 15 retirement points.
 - ★ *Opticalman 2, 1 & C*, NavPers 91389; 7 assignments, 21 retirement points.
 - ★ *Parachute Rigger 3 & 2*, NavPers 91639-1A; 6 assignments, 18 retirement points.
 - ★ *Parachute Rigger 1 & C*, NavPers 91606-1; 6 assignments, 18 retirement points.
 - ★ *Patternmaker 3 & 2*, NavPers 91549-1A; 6 assignments, 18 retirement points.
 - ★ *Patternmaker 1 & C*, NavPers 91551-A; 6 assignments, 18 retirement points.
 - ★ *Personnelman 3 & 2*, NavPers 91420-1B; 5 assignments, 15 retirement points.
 - ★ *Personnelman 1 & C*, NavPers 91422-



- 1C; 5 assignments, 10 retirement points.
- ★ *Photographer's Mate 3*, NavPers 91492-B; 10 assignments, 20 retirement points.
 - ★ *Photographer's Mate 2*, NavPers

- 91493-A; 10 assignments, 30 retirement points.
- ★ *Photographer's Mate 1 & C*, NavPers 91649; 7 assignments, 21 retirement points.
 - ★ *Photographic Intelligenceman 3 & 2*, NavPers 91592; 9 assignments, 27 retirement points. *Confidential.*
 - ★ *Postal Clerk 3 & 2*, NavPers 91401-3; 5 assignments, 10 retirement points.
 - ★ *Postal Clerk 1 & C*, NavPers 91460-1; 4 assignments, 8 retirement points.
 - ★ *Quartermaster 3 & 2*, NavPers 91286-2A; 6 assignments, 18 retirement points.
 - ★ *Quartermaster 1 & C*, NavPers 91253-A; 6 assignments, 18 retirement points.
 - ★ *Radarman 3 & 2*, NavPers 91269-1; 11 assignments, 33 retirement points. *Confidential, modified handling.*
 - ★ *Radarman 1 & C*, NavPers 91268-B; 6 assignments, 18 retirement points. *Confidential, modified handling.*
 - ★ *Radioman 3 & 2*, NavPers 91403-1C; 6 assignments, 18 retirement points.
 - ★ *Radioman 1 & C*, NavPers 91405-3; 6 assignments, 18 retirement points.
 - ★ *Seaman*, NavPers 91240-1B; 6 assignments, 12 retirement points.
 - ★ *Shipfitter 3 & 2*, NavPers 91535-1; 8 assignments, 24 retirement points.
 - ★ *Shipfitter 1 & C*, NavPers 91542; 6 assignments, 18 retirement points.
 - ★ *Ship's Serviceman 3 & 2*, NavPers



- 91447-1B; 2 assignments, 4 retirement points.
- ★ *Ship's Serviceman 1 & C*, NavPers 91450-B; 4 assignments, 8 retirement points.
 - ★ *Ship's Serviceman Barber Handbook*, NavPers 91465-1A; 2 assignments, 6 retirement points.
 - ★ *Ship's Serviceman Cobbler Handbook*, NavPers 91464-B; 2 assignments, 6 retirement points.
 - ★ *Ship's Serviceman Laundry Handbook*, NavPers 91466-C; 3 assignments, 6 retirement points.
 - ★ *Ship's Serviceman Tailor Handbook*, NavPers 91463-1B; 2 assignments, 6 retirement points.
 - ★ *Signalman 3 & 2*, NavPers 91291-D; 5 assignments, 15 retirement points.
 - ★ *Signalman 1 & C*, NavPers 91292-A; 3 assignments, 6 retirement points.
 - ★ *Introduction to Sonar*, NavPers 91258-A; 4 assignments, 12 retirement points.
 - ★ *Sonarman "G," 3 & 2*, NavPers 91261-1; 7 assignments, 21 retirement points. *Confidential.*
 - ★ *Sonarman "A," 3 & 2*, NavPers 91263;

- 4 assignments, 12 retirement points. *Confidential.*
- ★ *Sonarman "S," 3 & 2, NavPers 91259-3; 5 assignments, 15 retirement points. Confidential.*
- ★ *Sonarman 1 & C, NavPers 91265; 4 assignments, 12 retirement points. Confidential.*
- ★ *Standard First Aid Training Course, NavPers 91217-F; 6 assignments, 12 retirement points.*
- ★ *Steelworker 3 & 2, NavPers 91589-1B; 5 assignments, 15 retirement points.*
- ★ *Steelworker 1 & C, NavPers 91591-1B; 4 assignments; 12 retirement points.*
- ★ *Steward 3 & 2, NavPers 91693-2C; 5*

- assignments, 10 retirement points.*
- ★ *Steward 1 & C, NavPers 91696-C; 3 assignments, 6 retirement points.*
- ★ *Stewardsman, NavPers 91691-1E; 3 assignments, 6 retirement points.*
- ★ *Storekeeper 3 & 2, NavPers 91431-3B; 6 assignments, 18 retirement points.*
- ★ *Storekeeper 1 & C, NavPers 91433-2A; 4 assignments, 12 retirement points.*
- ★ *Torpedoman's Mate 3 & 2, NavPers 91297-B; 9 assignments, 18 retirement points.*
- ★ *Torpedoman's Mate 1 & C, NavPers 91299-1; 4 assignments, 12 retirement points. Confidential.*

- ★ *Trademan 3 & 2, NavPers 91698-1; 10 assignments, 30 retirement points.*
- ★ *Trademan 1 & C, NavPers 91699-A; 8 assignments, 24 retirement points.*
- ★ *U.S. Navy Shore Patrol, NavPers 91468-1F; 3 assignments, 6 retirement points.*
- ★ *Utilities Man 3 & 2, NavPers 91594-2; 8 assignments, 24 retirement points.*
- ★ *Utilities Man 1 & C, NavPers 91596-1A; 4 assignments, 12 retirement points.*
- ★ *Yeoman 3 & 2, NavPers 91414-3B; 3 assignments, 6 retirement points.*
- ★ *Yeoman 1 & C, NavPers 91416-3A; 5 assignments, 15 retirement points.*

Personnel-wise, These Developments May Be in Your Future

NEW SCIENTIFIC developments, just over the horizon, will change more than the appearance of Navy ships and weapons. Inevitably, they will also alter the Navy way of life.

It's far too soon to tell precisely what's in store, but neither is the crystal ball completely opaque. The Bureau of Naval Personnel, already faced with a rapidly growing demand for highly trained technicians and reliable, effective managers has taken a number of steps to keep the situation under control. These BuPers actions seem to indicate the direction to be pursued in the future.

For example, there's the:

- **Settle Report (ALL HANDS April 1964).** The Settle Board recommended the rejuvenation of the Warrant Officer grades and paved the way for the compression of super chief ratings in some fields. The new program will allow the Navy to capitalize on both the experience and specialized skills of senior enlisted men.

- **The Navy uniform test (ALL HANDS, November 1963).** Tests of the CPO/officer type uniform should determine, sometime this year, whether or not Navymen want a new uniform and, if so, the practicability of change.

- **Seavey Shorvey revisions (ALL HANDS, June 1964).** New three-times-yearly seavey information will give Navymen a better idea of their rotation date. In addition, BuPers has reviewed the allowances for G billets, such as recruit instructors, special services, and Masters-at-Arms. Many of these billets, especially those written for E-4, have been upgraded. Consequently, career men in ratings in which the rotation to

shore is slow will receive more shore duty.

- **NEC revisions (ALL HANDS, December 1964).** Rating-associated Navy Enlisted Classifications will allow order-writing activities to consider a man's specialized qualifications as well as rate and rating. End result is a better chance to place the right man in the right job, eliminating wasted training and square pegs in round holes.

- **Recent moderate pay raises,** particularly those concerning separation pay (ALL HANDS, September 1964). New regulations help most Navy families to foot extra bills incurred when the man of the house is away.

- **In addition, a Pay Task Force** has been formed in the Bureau of Naval Personnel to determine and promote a meaningful pay adjustment and to provide the Navy with sound, reasonable support for pay increase proposals. (These task forces will welcome your ideas and suggestions for improving enlisted retention and military pay.)

- **Formation of the Bureau of**

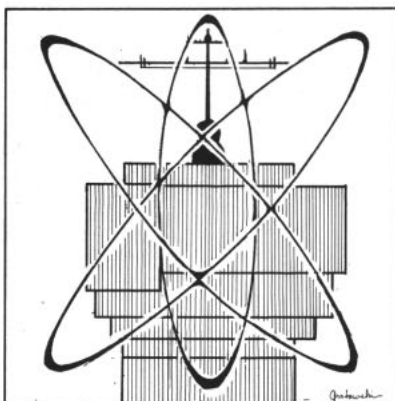
Naval Personnel Task Force for Enlisted Retention. The group, composed of senior officers, will look into reasons why some men reenlist while others don't and recommend new ideas and programs to improve the Navy's retention efforts. They will recommend changes which should benefit the career sailor. A full report will be printed in a future ALL HANDS issue.

- **The Bureau has reenforced its Career Counseling effort,** recognizing the importance of getting the word around to all hands on the many career inducements developed for the Navy bluejacket. In addition, officers and chief petty officers have been added to a large number of major fleet and force staffs to ensure that top commanders are kept abreast of progress in developing the proper balance in career personnel that is needed, and to assist the ships in carrying out an efficient and effective career information effort.

The changes and new programs illustrate two trends which may logically be expected to continue. Number one: As Navy billets become more specialized and demanding, BuPers must pay greater attention to the complete utilization of each man. Duty, training and career patterns will receive extra attention . . . in other words, the Navy can't afford to waste *your* skills.

Number two: As training becomes more expensive and time-consuming, the skilled Navyman takes on extra value. Consequently, the Navy is prepared to go a long way to make the outfit a better place to "spend 20—or more."

Watch future issues for other developments as they are available.



THE BULLETIN BOARD

New Quals Manual Outlines Progression to Top CPO Grades

SEVERAL CHANGES in the Navy's rating and rank structure have been made over the past months. The effects are gradually being felt in the Fleet.

These changes are of concern to every career-minded enlisted man. Generally, they should help you to achieve a higher career goal.

The only selfish motive on the Navy's side is that it hopes to utilize your potential more effectively, by requiring that you become more highly qualified as you ascend the promotion ladder. Most, if not all, of these changes can be traced to recommendations made by the Settle Board, which was headed by Vice Admiral Thomas Settle, USN (Ret).

When the Settle Board was convened by the Chief of Naval Personnel in late 1963, it was charged to review and make recommendations concerning various Navy enlisted-to-officer programs, and the E-8/E-9 program.

After its months-long study, the board made several major concrete recommendations:

- That the warrant officer program be revitalized in revised form;
- That LDO inputs be reduced in step with renewed warrant officer inputs, and that the sole source of LDO inputs be the commissioned warrant ranks W-2 and W-3;
- That qualification requirements for E-8 and E-9 be formulated, and that all detailing of E-8s and E-9s be shifted from EPDOs to BuPers;
- That certain related specialties be compressed at the E-8/E-9 level; and
- That LDO, WO and E-8/E-9 billets be identified throughout the Navy.

Every major recommendation made by the Settle Board has since been adopted by the Navy. With these building blocks in place, the Bureau of Naval Personnel is pointing the mortar. The most recent result: A new manual of qualifications for advancement to E-8 and E-9—the first in existence.

The contents of this publication—NavPers 18068A-1—are singularly indicative of the extent of changes

that have been made in the enlisted rating structure. For the first time, clear lines of demarcation between chief and senior chief, and between senior and master chief, have been established. No longer are the two top enlisted rates mere pay steps, as the Board described them.

Equally important, the new E-8/E-9 Quals Manual reflects the revised enlisted rating structure that was approved by SecNav on 26 Jun 1964. This, in BuPers lingo, is the "compression" program.

Through compression, various related specialties at the senior and master chief levels have been redesigned to reflect progressively higher levels of responsibility and broader scopes of authority.

For example, the system previously allowed for men in the AX, AT, AQ and AE ratings to progress to E-9 in their respective ratings. Under the new structure, men in these four ratings will continue to E-8 in their respective specialties, and from there they will all compete for advancement to *avionics technician*—a new rating—at the E-9 level.

This is one case, out of six, where two or more ratings are compressed into a new rating at the E-9 level. The other five new E-9 ratings, and the E-8 ratings that feed into them, are listed below:

All-Navy Cartoon Contest
Fredric W. Donour, Jr., PC3, USN



"Now that's what I call a 'Navy well done!'"

Aircraft maintenanceman—ADCS, AMCS, PRCS and AZCS.

Precision instrumentman—OMCS and IMCS
Constructionman—BUCS, SWCS and EACS
Equipmentman—EOCS and CMCS

Steam Propulsionman—MMCS and BTCS

Still other ratings are being compressed at the two top levels, but in all other cases they will maintain the name of an existing rating. In some cases the compression takes place at the E-8 level. An example of this is the case of signalman and quartermaster, where SMC and QMC will both feed into QMCS, then progress to QMCM.

In the case of interior communications electrician and electrician's mate, the compression takes place at the E-9 level. Thus, ICCS and EMCS will feed into EMCM.

Other compressed ratings that will be affected in either of these two ways, and the ratings that will feed into them, are:

FTCS—FTC and MTC
DCCS—DCC and SFC
MLCS—MLC and PMC
TMCS—TMC and MNC
UTCM—CECS and UTCS
SKCS—SKC and AKC
SKCM—SKCS (including merged AKCS) and SHCS

There are 29 ratings that will not be affected by compression. They are:

AC, AG, AO, BM, BR, CS, CT, DK, DM, DS, DT, EN, ET, HM, JO, LI, MA, MR, MU, PC, PH, PN, PT, RD, RM, SD, ST, TD and YN.

All of these ratings will maintain their present structure through grade E-9.

The two remaining general ratings—gunner's mate and aviation boatswain's mate—are slightly different cases because they have service ratings at the E-7 level.

(Only four ratings fall into this category. The other two are AD and AM, which are split up through the E-7 level to ADJ and ADR, and AME, AMH and AMS, respectively. In both of these cases, the service ratings are compressed into general ratings (AD and AM) at the E-8 level, and further compressed, as stated above, into aircraft maintenanceman at the E-9 level.)

At E-7, aviation boatswain's mate is split into three service ratings—ABE, ABF and ABH. These are compressed to AB at E-8, and the general rating then progresses to E-9.

Gunner's mate is also split into three service ratings at the E-7 level—GMG, GMM and GMT. Then GMG and GMM are compressed to GM at the E-8 level, and progress as such to E-9.

GMT, however, carries right through E-9 as a service rating, and is the only rating in the Navy that does so.

The over-all effect of the compression program is that 72 general and service ratings at the E-7 level are reduced to 60 E-8 ratings, and further reduced to 46 E-9 ratings.

What does this mean to you? First, as we said, it means that you will be required to broaden your scope of knowledge as you move up in your own specialty field and, wherever appropriate, in related fields.

As a result, you will be taking on increased responsibilities as an E-8 and E-9, and be in a better position to continue to expand your talents. Promotion to senior and master chief will constitute a promotion to a genuinely higher managerial level.

At the same time, prospective officer candidates will be developing themselves, in consonance with the revised warrant officer and LDO programs, for what inevitably accompanies a commission—further expansion of responsibilities and fields of knowledge.

Insofar as the E-8/E-9 *Quals Manual* is concerned, in its present form it is a temporary supplement to the *Manual of Qualifications for Advancement in Rating* (NavPers 18068-A), and will eventually become a permanent addition to this manual.

It officially establishes minimum military and professional qualifications for senior and master chiefs. These qualifications will be reviewed under the planned schedule for publication of changes to the manual.

It is worth mentioning, also, that these qualifications were developed after limited research, in order to expedite the program. Individual commands are invited to review E-8/E-9 qualifications and inform the Chief of Naval Personnel (Pers-15) of any suggested changes or addi-

tions to meet Fleet needs.

It is essential that these qualifications reflect technical, operational and procedural developments within the Navy, and that they specify only those minimum requirements which are applicable to the majority of personnel in any given rate.

The new structure will take effect on 1 Jul 1965. At this time all existing E-8s and E-9s whose ratings are affected by the compression program will assume their new status. For many, this will involve a change of rating. For example, an SMCS will become a QMCS, an ICCM will become an EMCM, both AKCMs and SHCMs will become SKCM, etc.

Master chiefs whose rating will be switched to one of the six new ratings (approximately 700 men) will continue to wear their present rating badges, but will assume the new title.

The first advancement under this new structure will take place as a result of the August 1965 E-8/E-9 exams.

Now that the E-8/E-9 *Quals Manual* is in print, it would be wise to become familiar with it, and begin

completing the requirements for the next rate in your path of progression.

(For a chart of the path of progression for all ratings, through warrant officer and LDO, consult the center spread of the October 1964 issue of ALL HANDS.)

In two cases in the *Manual*—the requirements for advancement to ATCS and PRCS—completion of correspondence courses for related ratings are listed as requirements. These are errors, and are being deleted from the manual.

Where a rating is being combined with one or more other ratings in related fields, the qualifications do not require that correspondence courses for the related ratings be completed—only that the individual is *knowledgeable* of the requirements and aspects of these ratings. Whether or not you take out the courses to help satisfy this requirement will be your choice.

However, keep in mind that exam questions will be written on the basis of over-all knowledge required for advancement to a new rate. And from now on, the next step up will be a big one.

WHAT'S IN A NAME

The Plane Captain

In almost any training squadron, the average plane captain is non-rated and only 19 years old. Without him, the turnover of pilots would take a sharp rise.

This group of hard-working young men begin their day as early as 0200. By 0300 they're down at the hangar bay checking the several aircraft that are assigned to each. The preflight inspection includes checking the tire pressure, fuel, lubrication, engine and electrical connections, parachute rigging and survival equipment. They

must make sure the canopy is working correctly and check the condition of the landing gear.

By the time flight operations begin, the plane captains already have been at work for three hours or more. To those who are just appearing on the scene, they seem to be taking it easy, but this is merely their short midday break.

It isn't long before they're hard at work again preparing to launch the aircraft.

The launch begins.

Pilots and students file into the line shack in a seemingly never-ending procession. Now the plane captains become involved in the send-out and recovery.

When a pilot comes out to an aircraft, he looks it over and then climbs into the cockpit. While he is turning up the engine, the plane captain gives the aircraft a final external check and then guides the pilot to the taxiway.

Next come the recovery operations. The plane captain directs the pilot from the taxiway to his assigned parking spot, refuels, inspects and services the plane before its next flight. And the cycle starts over again and continues until the squadron secures from flight operations.



Waiting for a Letter? You Can Help Speed It on Its Way

THE DAYS of the long military addresses are over. The Navy's Zoning Improvement Plan (ZIP) has reached the point which enables mail to be sorted and on its way to military activities by using the five-digit number code instead of the geographical location.

Generally speaking, ZIP codes provide a uniform arrangement by which mail can be mechanically pre-sorted and handled faster by postal employees.

As far as the Navy is concerned, you should use the appropriate ZIP code instead of the earlier Navy or APO numbers. One of the immediate results will be improved mail service. Reduced post office costs and mechanical mail sorting are expected to come later.

Incidentally, the Post Office Department has agreed that the short

titles "FPO" and "APO" may be used instead of the spelled-out versions. In addition you don't need to use the state after the city for overseas addresses.

Here are some examples of the new addresses:
Commanding Officer
U. S. Naval Station
FPO New York 09571

Officer in Charge
U. S. Naval Security Group Activity
Box 24
APO San Francisco 96263

Officer in Charge
U. S. Naval Radio Station T
FPO Seattle 98790

BMI John D. Smith, 7654321, USN
U. S. Naval Station
Box 25
FPO San Francisco 96610

If you are stationed aboard ship or

with a mobile unit, you may use the shortened form; thus:

BMI John D. Smith, 7654321, USN
USS Scanner (AGR 5)
FPO San Francisco 96601

Or, for the LantFlt mobile units, thus:

Ensign J. P. Jones, SC, USN
USS Claude V. Ricketts (DDG 5)
FPO New York 09501

• Ships and mobile units assigned the "FPO New York" address should use ZIP code 09501 after the city. Those assigned "FPO San Francisco" have ZIP code 96601.

• If you are stationed overseas, do not name the actual overseas geographical location in your FPO address, because it might become confused with international mailing addresses.

• Find the area in which your command is located for your ZIP

GEOGRAPHICAL LOCATION		ZIP-NAVY NO.	OLD NAVY NO.	GEOGRAPHICAL LOCATION		ZIP-NAVY NO.	OLD NAVY NO.
FPO, NEW YORK ADDRESSES							
London, England	09510	100	Barbers Point, Oahu, Hawaii	96611	14		
Londonderry, Ireland	09512	220	Lualualei, Oahu, Hawaii	96612	66		
Bremerhaven, Germany	09514	913	Wahiawa, Oahu, Hawaii	96613	85		
Thurso, Scotland	09516	524	Wake Island	96615	130		
Edzell, Scotland	09518	585	Kunia, Oahu, Hawaii	96617	509		
			Eniwetok, Marshall Islands	96625	572		
			Kaneohe Bay, Oahu, Hawaii	96628	990		
Naples (Capodichino), Italy	09520	566					
Naples, NAVSUPACT, Italy	09521	510	Guam, Mariana Islands	96630	926		
Sigonella, Sicily	09523	555	Chichi Jima, Bonin Islands	96634	905		
Nea Makri, Greece	09525	577	Saipan, Mariana Islands	96636	935		
Cairo, UAR	09527	540	Guam, Agana, Mariana Islands	96637	943		
Malta, B. C. C.	09529	240					
Nicosia, Cyprus	09531	539	Midway Island	96640	3080		
Villefranche, France	09533	133					
			Subic Bay, Philippines	96650	3002		
Rota, Spain	09540	537	Sangley Point, Philippines.	96652	961		
Cartagena, Spain	09542	533	Cubi Point, Philippines	96654	520		
Kenitra, Morocco (Port Lyautey)	09544	214	San Miguel, Philippines	96656	535		
			Tarlac, Philippines	96658	597		
San Juan, P. R.	09550	116	Hong Kong, B. C. C.	96659	571		
Roosevelt Roads, P. R.	09551	1506					
Antigua, T. W. I.	09552	109	Yokohama, Japan	96660	850		
Barbados, T. W. I.	09553	505	Yokohama (Housing Area)	96661	570		
Trinidad, T. W. I.	09555	117	Yokosuka, Japan	96662	3923		
Eleuthera Island, Bahamas	09556	141	Iwakuni, Japan	96664	955		
San Salvador, Bahamas	09557	106	Sasebo, Japan	96666	3912		
Turks Island, Bahamas	09558	104	Atsugi, Japan	96667	3835		
			Kami-Seya, Japan	96668	830		
Bermuda	09560	138	Chinhae, Korea	96669	513		
Keflavik, Iceland	09571	568	Okinawa, Naha	96670	3867		
Balboa, Canal Zone	09580	121	Okinawa, Futema	96672	580		
Cristobal, Canal Zone	09584	720	Okinawa, Tengan	96673	161		
Rodman, Canal Zone	09585	188					
Guantanamo Bay, Cuba	09593	115	Perth, Australia	96680	522		
Argentia, Newfoundland	09597	103	Christchurch, New Zealand	96690	531		
Shelburne, Nova Scotia	09598	101	Antarctic Support Force	96692	20		
FPO SAN FRANCISCO ADDRESSES				FPO, SEATTLE, ADDRESSES			
Pearl Harbor, Oahu, Hawaii	96610	128	Kodiak, Alaska	98790	127		
			Adak, Alaska	98791	230		

code and use it in your correspondence. Also, tell your friends and relatives your new address, so their mail can reach you faster.

Facts of Life (Navy Type) Found in Officer Fact Book

The *Officer Fact Book* can be an important tool in assessing your future as a U. S. naval officer, whether your present status is commissioned or enlisted.

The book (NavPers 15898) is available in most personnel offices. It presents a factual inventory of the Navy as a profession and a way of life, discussing both the positive aspects of naval commissioned service and the pitfalls—with advice on how to avoid the latter.

Here is a rundown on what you can find in the book, and where:

- Chapter one discusses the book and its uses and serves as a general index to the following chapters.

- Chapter two contains data on the Navy's role and future, stressing the importance of the individual officer.

- Chapter three gives data on the relationship between the Navy and the Navy family, including a discussion of what the Navy is doing toward the improvement of home life.

- Chapter four reviews the current officer distribution situation for all code designations. It contains information on the opportunities for Reserve officers to transfer to the Regular Navy, extend on active duty or be voluntarily recalled to active service. Data concerning career stability for Reserve officers is also provided.

- Chapter five explains the various paths to a Regular Navy commission, both from the enlisted ranks and the Reserve officer inputs. The chapter also includes information on

All-Navy Cartoon Contest

Thomas Robert Gunlock, LTJG, USN



"You didn't knock."

readjustment pay for Reserve officers.

- Chapter six concerns the Navy's promotion system for both Regular and Reserve officers. The laws and regulations governing promotions are listed, as well as an explanation of the three elements most affecting advancements: distribution, flow rate and attrition.

- Chapter seven deals with the educational opportunities available to officers. Illustrations explain the functional and basic technical courses and the postgraduate training available to each officer. Other figures indicate the normal educational patterns for Regular officers.

- Chapter eight gives a comprehensive analysis of the various factors affecting officer assignments and sets forth the assignment patterns for Regular officers. Also in chapter eight is an explanation of how an officer may transfer from one officer code designator to another.

- Chapter nine lists pay and allowances.

- Chapter ten covers the rights and benefits of the Regular and Reserve naval officer. A few of the topics discussed are: retirement pro-

visions with reference tables; major provisions of the Medical Care Act and Survivor Benefits Act with amplifying tables; transportation allowances; tax-free allowances; assistance programs; commissaries; exchanges; dependent schooling.

The book is updated annually. Latest changes, which should already have reached most fleet commands, include the latest information on pay.

Ocean Station

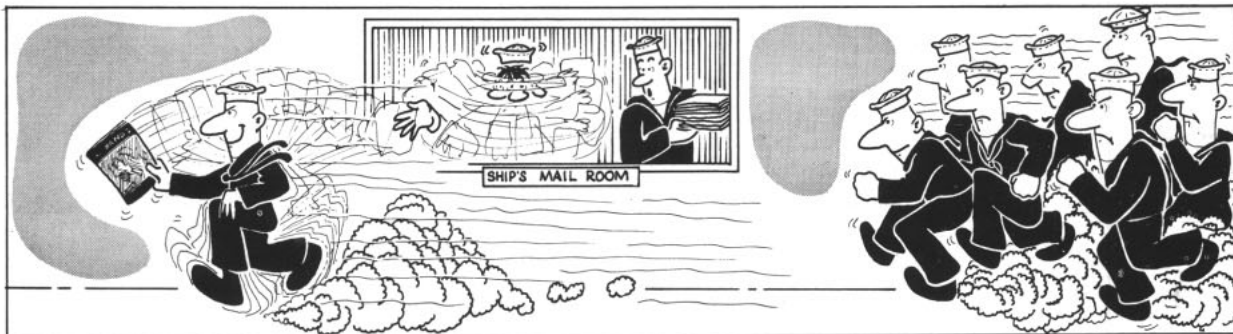
The Operation Deep Freeze ocean station is just a spot on the map—60 degrees south, 159 degrees east. Here a ship sits for 20 days at a stretch, supplying navigational and weather information to aircraft flying between Christchurch, New Zealand, and the Antarctic.

The duty is not glamorous—often it is tedious and uncomfortable. While on station, the ships encounter some of the worst weather in the world. Winds of 85 knots are not uncommon, and seldom does the temperature rise above freezing. But this dreary situation emphasizes the need for a weather and navigational aid along the 2200-mile Antarctic lifeline. Without this ocean station, the planes would be without any surface reference point.

During this year's Operation Deep Freeze, two ships will alternate three-week tours on ocean station: the New Zealand frigate HMNZS *Pukaki* and the U. S. radar picket ship *uss Mills* (DER 383).

While not on patrol, the ships will visit the New Zealand ports of Dunedin, Lyttleton and Wellington. There they will take on supplies for their next patrol, and the crew will have a chance to relax.

The Navy crews who serve on ocean station duty rate lots of credit for their performance of a tough, rugged and important job.



ON THE RUN—Being fastest and first can be all right if you pass ALL HANDS on to nine shipmates waiting for it.

An Answer to Your Queries on Joining SEAL and UDT Teams

THE FIRST STEP in becoming a SEAL or a UDT man is the easy one: Volunteer. If you are highly motivated and can meet the requirements, your acceptance will be almost automatic.

You may apply for UDT training through your fleet commander or, if you are an officer, the Bureau of Naval Personnel. Specific requirements vary, depending upon where your request will go, but the basic prerequisites are the same regardless: Your commanding officer must feel you are motivated, and you must prove you have the strength and stamina to cut the mustard.

Here is a breakdown of requirements by fleet and, for officers, BuPers.

Atlantic Fleet—As an enlisted applicant you must:

- Be between the ages of 18 and 31, in any rate or rating.
- Have no history as a chronic mast offender.
- Have no history of claustrophobia or motion sickness.
- Have no excessive fear of water or explosives.
- Have demonstrated maturity and emotional stability by past personal performance.
- Have the apparent ability to maintain composure under adverse circumstances.
- Pass a swimming and running test. In the presence of a commissioned officer you must run one and one-half miles in 15 minutes or less, and swim 300 yards—using backstroke, breaststroke and sidestroke—in nine minutes or less, with no rest periods.
- Have a GCT of 45 or higher.
- Have at least 30 months' obligated service when you report for training.
- State in your application that you understand the nature of UDT duty and that your immediate family has agreed to make no objection to your assignment to such a billet.

(For more information concerning the Atlantic Fleet requirements for enlisted men, see EPDOLANT Inst. 1510.2B.)

Pacific Fleet—If you are an enlisted applicant you must:

- Be at least 19 years old and of mature disposition.
- Be screened to determine loyalty and integrity for access to classified papers and information.

- Have no record as a chronic mast offender.

- Have no history of claustrophobia or motion sickness.

- Have no excessive fear of water or explosives.

- Have a GCT of 45 or higher.

- Have a minimum of 28 months' obligated service upon reporting to UDT school.

- Successfully complete a swimming test. Current instructions require you to swim 100 yards using the backstroke, 100 yards using the breaststroke, and 100 yards using the sidestroke. You may have rest periods between the three examinations, but you must swim all three on the same day and in a total time (disregarding rest periods) of 11 minutes or less.

- Submit a written statement from your next of kin to the effect that they understand the nature of UDT duty and will not subsequently request your separation from the program due to its inherent dangers.

For more information concerning the Pacific Fleet requirements for enlisted men, see CINCPACFLT Inst. 1510.4A.)

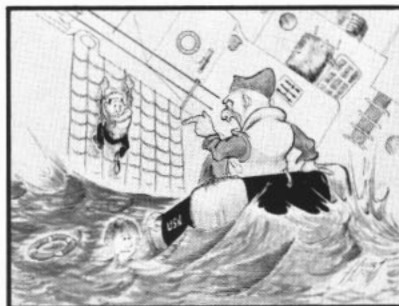
BuPers—As an officer applying for the UDT program you must:

- Be in code 110X or 6XXX
- Be less than 31 years of age.
- LDOs must have significant diving, EOD or UDT experience as officers or enlisted men.

(For more information concerning the BuPers requirements for officer volunteers, see Article C-7305 of the *Bupers Manual*.)

If you meet the above standards, your training officer will assist you to prepare your request. Your CO will endorse your letter and recommend approval or disapproval.

All-Navy Cartoon Contest
John R. Thornton, SOG3, USN



"Hold it, Hartwell! Remember, you're on restriction."

A report of a complete physical examination must also be enclosed in the letter. Those who screen the applications are strict about the medical standards, for the slightest defect can be aggravated by UDT training and duty. Candidates with old injuries, now healed, often fail the UDT course when the rough duty causes a recurrence.

Timing is important. Pacific Fleet training begins in March and August, while Atlantic Fleet classes open in January and July. Candidates are only considered for the upcoming class, so your request should reach its destination at least two months before the school begins.

If accepted, you will be issued orders for 24 weeks of UDT training at the U. S. Naval Amphibious School at Little Creek, Va., or San Diego, Calif.

Thereafter, you're on your own.

MT Rating Will Include Only Polaris Specialists

The revised qualifications for advancement in the missile technician rating, which result from changes made to that rating in May 1964, have been published.

In essence, the MT advancement qualifications have been revised by the removal of those factors related exclusively to surface missiles.

This leaves the MT rating with only *Polaris*-trained specialists, as announced earlier.

The revised quals are published as enclosure (1) to BuPers Notice 1440 of 30 Nov 1964, and will be incorporated later this year in Change Two to the *Manual of Qualifications for Advancement in Rating* (NavPers 18068A).

Correspondence Courses

Four correspondence courses have been issued and are available through the Naval Correspondence Course Center, Scotia, N. Y. Of the four, one is a revised course, the others are new issues. The four are:

- Aviation Boatswain's Mate E 1 &C, NavPers 91672.
- Aviation Machinist's Mate J 3&2, NavPers 91582.
- OCC/ECC Naval Electronics, Part II, NavPers 10446 (confidential) supersedes NavPers 10929-2.
- OCC The Operations Officer, NavPers 10414 (confidential).

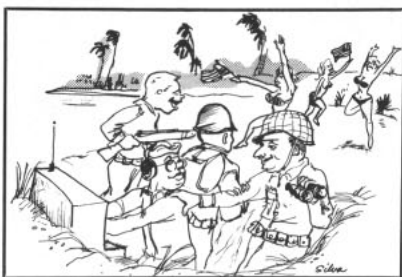
More Muscle, Less Records In Physical Fitness Program

From now on there will be less pencil flexing and more calisthenics in the Navy's physical fitness program.

In recent changes to the basic instruction outlining the program, BuPers has altered the individual records-keeping procedure, and abolished the requirement for senior commands to submit an annual physical fitness report.

Individual records will now be maintained at the administrative level considered most appropriate by each command (such as by division, office or shop), rather than at a command level. However, these record

All-Navy Cartoon Contest
L. R. Silva, PN3, USN



"Radio the ship and cancel that request for reinforcements."

forms (NavPers 2900) will still be included in the official records when an individual is transferred.

The previous requirement for type

and force commanders, district commanders and air training commanders to report annually on the state of physical conditioning within their commands has been dropped. Now BuPers will rely on a periodic sampling to prepare its report for DOD.

In one other major change, the Bureau has placed a new requirement on all commands which conduct formalized training ashore (such as recruit training and schools commands), to conduct three one-hour physical training sessions each week.

Each of these sessions is to begin with 15 minutes of calisthenics, with the remaining time devoted to other organized activity, such as competi-

Green Turtles Fly Overseas by Naval Air (Then They'll Travel on Their Own Steam)

LAST SEPTEMBER the Navy began the fourth year of one of its more unusual enterprises—Operation Green Turtle. And as the name implies, it involves turtles—thousands of them.

It is a good will effort, a conservation project and a scientific experiment all rolled in one. The Office of Naval Research is cooperating with scientific and educational organizations on behalf of the green turtles themselves and the people of the countries to which they migrate.

Through this project, the Navy hopes to gather information on the migration habits and navigational abilities of the green turtle. In addition, it is hoped this project will prevent the extinction of the giant sea turtle, and replenish the species in areas where they are no longer abundant.

The first half of the operation began when a seven-man crew left Roosevelt Roads in their HU-16 amphibious aircraft for the special hatching grounds on Costa Rica's

Tortugaero River. There thousands of baby turtles were packaged in special wooden boxes to keep them moist.

The first delivery route included Great Inagua Island, Miami, and the islands of Bimini, New Providence, St. Thomas and Puerto Rico.

The second trip (after picking up 6000 more turtles in Costa Rica) took in British Honduras, Mexico, Grand Cayman, Cartagena, Trinidad, Granada, Barbados, Antigua and Puerto Rico.

In the past the Office of Naval Research has tagged certain female turtles in an effort to study their navigational habits. It was discovered that, after they mature, they return to their place of birth every third year to nest.

This year, a further step was taken on behalf of the turtles. Messages were placed inside bottles which were set adrift. The notes ask the persons who find them to relate where and when they were found. In this manner an attempt will be made

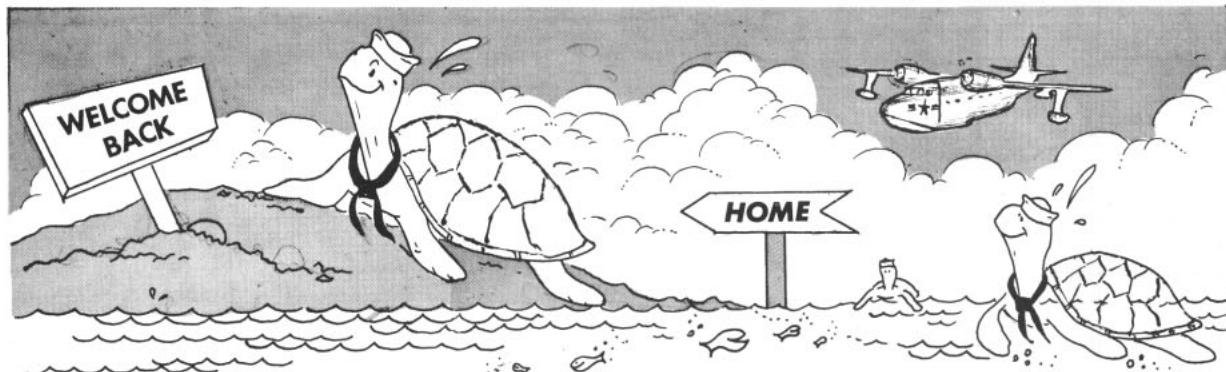
to relate ocean currents to the turtle migration.

When the turtles reach maturity, which takes five years, they'll weigh from 300 to 400 pounds and have a life expectancy of nearly 200 years. However, few will live to reach maturity.

Whether or not the project is successful cannot be determined until next year when the turtles that were released on the beaches four years ago will have matured. When Operation Green Turtle flies again next year, it is hoped that the crew will find these transplanted turtles have returned to nest on the beaches where they were released.

As of now, several large green turtles have been recovered at the previous year's relocation sites. Once they begin multiplying, a considerable step forward will have been taken toward the preservation of the giant sea turtle, and the local population will be provided with an excellent source of protein.

—Ensign Scott Chase, USN



tive sports or hiking. Everyone, including students and instructors, is required to participate in these activities, regardless of age.

These changes are reflected in BuPers Inst 6100.2B.

You Can Find Yourself In A Real Bind If You're Not Careful with USAFI Tests

Here's a thought for all I & E personnel: Do you need an amber blinking light installed in your office as a constant reminder to be cautious about how you handle USAFI test materials?

Perhaps you do if you're not aware of the possible consequences of mishandling test materials.

Responsibility starts at the top. *BuPers Manual*, Art D-2103(12)(b) states: "The commanding officer of each naval activity will appoint the Educational Services officer in writing as test control officer. He will apply for, handle and administer all controlled items (USAFI test materials). Test control officers will be commissioned or warrant officers."

This article further explains how these materials shall be handled, stowed and accounted for, and what procedure is followed when controlled items are placed in danger of compromise.

Here's a general brush-up on current regulations:

Testing materials should be logged in and out in the mail log, and accounted for by serial number.

They should be stowed, at minimum, in metal file cabinets with steel lock-bars and approved three-combination dial type padlocks, to which only authorized personnel should have access.

Tests procured on individual application are to be administered only to the person named on the application form. If the examinee has been transferred or discharged before completion of the test, the test must be returned immediately to the servicing USAFI.

Test materials obtained by installations in the continental U. S. on individual application must be returned to USAFI within 30 days. Tests issued to installations or ships outside the continental limits must be returned within 60 days.

All answer sheets and all tests issued on individual application must be returned immediately to USAFI upon completion (except that all parts of the GED test battery issued

All-Navy Cartoon Contest
Robert V. Wehn, Jr., SFM2, USN



"The navigator wants to know if you have finished shooting the stars, Sir."

on individual application are to be returned at the same time).

All tests must be returned to the issuing USAFI for destruction if they become worn, torn or otherwise unserviceable. In no case may they be destroyed by the command.

Tests should be administered in accordance with instructions forwarded.

The Educational Services officer will sign all completed answer sheets, thereby certifying that the regulations for administration and security have been carried out.

Importance of test security—All

Going By Car?

• **TRAVEL TIME**—Should you plan to drive your car to your next duty station or home port, you would do well to re-compute your travel time. But don't compute it on the basis of a 250-mile per day minimum, because this has been changed to a figure more in line with actual travel time on the modern highways of today.

After careful consideration of many factors that occur during this type of travel, the minimum has been increased 50 miles so that now you must average at least 300 miles each day. If there is an excess of 150 miles or more, you will be given an extra day. But if the excess is less than 150, you will have to make it up along the way.

Example: Say you are stationed in San Diego, and you receive orders to Norfolk. The mileage for pay purposes is 2921. Dividing 300 into 2921, you have nine days' travel time with 221 miles excess. Since the excess is greater than 150, you get an extra day, or ten days for the trip without being charged for leave.

controlled items are subject to accreditation, both by the Navy for its own purposes and by civilian educational agencies and institutions. Proper security is necessary not only for purely naval reasons, but also because loss or compromise could jeopardize the reputation of all USAFI tests and affect the accreditation based upon them.

When USAFI test material is lost, destroyed or otherwise placed in danger of compromise, the commanding officer is required immediately to stop all USAFI testing, and impound all USAFI tests on hand designated as controlled items. He must also:

- Immediately report the fact that there has been an apparent loss or compromise to the Chief of Naval Personnel;

- Promptly conduct an investigation to determine the extent to which the testing materials in question, and possibly other USAFI tests on hand, have been compromised;

- Fix responsibility for the malpractice;

- Determine what established test security measures have been violated; and

- Take whatever disciplinary action is called for.

Then he must report the results of the investigation and the corrective action taken to the Chief of Naval Personnel.

It is much easier, and obviously more desirable, if this can all be avoided. And it can, if regulations and instructions are followed.

Everyone involved in educational services is therefore urged to study the pertinent directives and other sources of information on this subject. *BuPers Manual*, Art D-2103 and BuPers Inst 1560.6B contain guidance, and the *Educational Services Manual* is another good source.

Army-Navy Museum Fund Drive Given Lift by Ships, Fleets

The Army-Navy Museum fund is growing, but the \$600,000 goal is not in sight yet. (For the story about construction of the Army-Navy Museum in Philadelphia's Carpenters' Court, see ALL HANDS, August 1964, page 29.)

The Army has successfully completed its fund-raising drive for half of the cost, while the Navy drive has now reached the \$100,000 mark in contributions and pledges.

Donations have been received from foundations, industries, friends of the Navy and from within the naval establishment—principally from the Fleet. Cruiser-destroyer forces are raising \$10,000 for a specific memorial; the Sixth Fleet has raised nearly \$6000; and individual ships have contributed, such as *uss Enterprise* (CVAN 65) (\$1500), *uss Ranger* (CVA 61) (\$100) and *uss Saratoga* (CVA 60) (\$500).

Also, contributions for the museum have been received from scattered shore activities and the Fourth Naval District.

Information on contributing to the Army-Navy Museum Fund is contained in OpNav Notice 5750 of 10 Jan 1964. Help is invited from all quarters. Support of the project offers a special opportunity for ships, stations and individuals to perpetuate their names in an appropriate museum.

List of New Motion Pictures Available to Ships and Overseas Bases

The latest list of 16-mm feature movies available from the Navy Motion Picture Service is published here for the convenience of ships and overseas bases.

Movies in color are designated by (C) and those in wide-screen processes by (WS).

Kisses For My President (2770): Comedy; Fred MacMurray, Polly Bergen.

Escape From Hell Island (2771): Mark Stevens, Glenda Scott.

Faces In The Dark (2772): John Ireland, Mai Zetterling.

Woman of Straw (2773) (C): Mystery Drama; Gina Lollobrigida, Sean Connery.

My Gal Sal (2774): Rita Hayworth, Victor Mature (Re-issue).

The Mark of Zorro (2775): Tyrone Power, Linda Darnell (Re-issue).

Johnny Apollo (2776): Tyrone Power, Dorothy Lamour.

The Man From The Alamo (2777): Glenn Ford, Julia Adams (Re-issue).

Station Six Sahara (2778); Carroll Baker, Denholm Elliott.

Ready For The People (2779): Simon Oakland, Everett Sloane.

Escape By Night (2780): Melodrama; Terance Longdon, Jennifer Jayne.

McHale's Navy (2781) (C):

What Do You Know About Sustained Power At Sea?

Navymen who are asked to speak at civilian gatherings may find a new presentation kit, "Sustained Power at Sea," to be very helpful. The kit, which includes 104 color slides and a speaker's guide, will soon be available in the Fleet.

Designed to replace the presentation "New Frontiers of Sea Power" published in 1960, the new kit will help Navymen illustrate the role of seapower. Slides and speaker's material focus upon the Navy's mission in support of U. S. domestic and economic well-being, as an implement of foreign policy and as a defender of the country. The material will be of interest to military audiences and civilians.

The presentation guide is flexible, and may be adapted to meet almost any speaking engagement. Although 45 minutes long in the

original state, the program may be edited down to a running time of 20 minutes with very little trouble. Where desired, extra slides may be added to illustrate the specialized mission of a given command and how it fits into the over-all Navy picture.

About 2400 of the kits have been produced and mailed to the major Navy commands, where they can be obtained by subordinate units. The presentation material was made available throughout the Fleet and Shore Establishment in January, the 10th anniversary of the first sea voyage powered by atomic energy.

Extra kits may be obtained by writing to the Office of the Chief of Naval Operations (Attn: Op-09D), Navy Department, Washington 25, D. C.

Comedy; Ernest Borgnine, Tim Conway.

Centennial Summer (2782): Cornel Wilde, Jeanne Crain (Re-issue).

Cry of the City (2783): Victor Mature, Richard Conte (Re-issue).

Buffalo Bill (2784): Joel McCrea, Maureen O'Hara (Re-issue).

The Homestretch (2785): Cornel Wilde, Maureen O'Hara (Re-issue).

Youngblood Hawke (2786): Drama; James Franciscus, Suzanne Pleshette.

The Patsy (2787) (C): Comedy;

Jerry Lewis, Ina Balin.

A Jolly Bad Fellow (2788): Comedy Drama; Leo McKern, Janet Munro.

The Three Lives of Thomasina (2789) (C): Drama; Patrick McGeehan, Susan Hampshire.

Somewhere In The Night (2790): John Hodiak, Nancy Guild (Re-issue).

Boomerang (2791): Dana Andrews, Jane Wyatt (Re-issue).

Suez (2792): Tyrone Power, Loretta Young (Re-issue).

Swamp Water (2793): Walter Brennan, Ann Baxter (Re-issue).

Invasion 1700 (2794) (C) (WS): Drama; Jeanne Crain, John Drew Barrymore.

The Masque Of The Red Death (2795) (C) (WS): Melodrama; Vincent Price, Hazel Court.

I'd Rather Be Rich (2796) (C): Sandra Dee, Robert Goulet.

Miracle on 34th Street (2797): Maureen O'Hara, John Payne (Re-issue).

Alexander Graham Bell (2798): Don Ameche, Loretta Young (Re-issue).

A Message To Garcia (2799): Wallace Beery, Barbara Stanwick (Re-issue).

All American (2800); Tony Curtis, Mamie Van Doren (Re-issue).

War Arrow (2801): Jeff Chandler, Maureen O'Hara (Re-issue).

All-Navy Cartoon Contest James R. Branum, CT1, USN



"Big Daddy will see you now!"

You Don't Have to Be a Gooney Bird to Like Duty on Midway

BACK IN the third decade of this century the only thing that came to most people's minds when Midway was mentioned was an island practically devoid of people, having only an airstrip on which the China Clipper landed to be refueled.

Today, the island is more than a stopping place, and most Navy families consider that they haven't done half bad when they receive orders to go there.

There is good reason for this belief, for the island is surrounded by beautiful white beaches which are washed by crystal clear water protected by the coral reef surrounding Midway. Swimming and skin diving are ideal and almost anyone who goes out to the reef to fish will come back with a seafood dinner ready for the skillet.

Along the beach there are picnic groves of Australian ironwood trees where anyone can find first-rate facilities for a cookout. To add to the pleasure of an evening on the beach, the weather is nearly ideal for picnicking about two-thirds of the year.

In July 1958, a 40 million-dollar construction project was completed to support the Airborne Early Warning Wing DEW Line in the Pacific which protects continental United States from surprise attack.

Today Midway is one of the most important U. S. naval installations in the Pacific. As its name suggests, it is just about in the middle of the North Pacific Ocean and is halfway around the world from Greenwich, England. It is neither a tropical island nor a south sea island and the

only people who live there are military, civil service or construction project personnel.

Midway Island's climate is fairly uniform throughout the year. There are two seasons—shirt-sleeve season and sweater season. The average highs during July, August and September are 78 degrees and the January, February and March lows average 66 degrees. The highest temperature on record is 92 degrees. The lowest is 54 degrees.

The entire year is humid on Midway which makes cotton dresses the order of the day for women and tee shirts a favorite with men during shirt-sleeve weather. Because of the humidity, sweaters or light jackets come in handy during the cooler season.

New arrivals on Midway who expected a more or less barren island are usually pleasantly surprised, for the vegetation is a luxuriant profusion of trees, shrubs, flowers and grass.

It will probably come as a surprise to no one that the bird seen most often on Midway is the gooney bird, which has become the symbol of the island.

Several other birds also make their home on Midway such as the boat-swain bird whose call resembles the sound of a bosun's pipe and, incidentally, is the only bird known to fly backwards. Another native is the night flying moaning bird which builds its nest underground. State-side pigeons (bird type) are also numerous.

The duty tour on Midway is 12 months without dependents and 18 months with (or 12 months after dependents arrive, whichever is greater). Extensions are granted upon approval of the commanding officer.

There is only one place to live in Midway and that is in government housing. Before your dependents are permitted to come to Midway, the commanding officer must certify that quarters are available. Except for key billet officers, there is a waiting list and precedence on the list dates from when you report on board.

The normal waiting period for officers is six months. Chiefs can expect a four-month wait and other enlisted men can expect to wait seven months—that is, if they are E-5 or E-6. Those in lower rates are not eligible for family housing.

As soon as you receive your orders to Midway, you should arrange for shots and chest X-ray for the entire family because the Commandant of the Twelfth Naval District will not authorize travel until they are obtained.

You and your dependents don't need a passport to go to Midway but all your dependents over 10 years of age must have an identification card (DD Form 1173).

When you and your family report to the Commandant of the Twelfth Naval District at San Francisco for travel (if it's concurrent travel, of course), you will be assigned space to Honolulu either on a MATS flight from Travis Air Force Base, Calif. or by surface craft.

If you fly, you will have to wait from one to 10 days for a seat with four days being the average.

When you arrive at Midway, you will be met by the Air Terminal Duty Officer and the Chief Master at Arms who will provide whatever information you need concerning temporary or permanent quarters, transportation, where to check in and whatever other information you want.

You'll find your quarters completely furnished with tropical type furniture and mattresses so you need ship only a minimum of household goods. Be sure to store the rest of your goods in the United States because there are no facilities for unwanted furniture on the island and most wood, ferrous metals, leather goods and what have you are easy prey for mildew. Don't panic at the mention of mildew; it is a probability but it's

All-Navy Cartoon Contest
Reese E. Every, YN1, USN



"Most of the crew are from the farm, Sir. We get better results using Henry for reveille."

All-Navy Cartoon Contest
Reese E. Every, YN1, USN



"How's liberty here, Mac?"

not as bad on Midway as a lot of places you may have been (Hawaii, for instance).

There are a few things you should bring with you to Midway. These are furniture for small children, pillows and throw rugs. You will probably find your new home more homelike if you bring some of the pictures you are used to, a few pieces of your favorite bric-a-brac and a familiar lamp or two.

You will also need linens, kitchen utensils, china, glass and tableware, electrical appliances, two blankets per bed and enough toys for the kids until you can get to the Navy Exchange.

Whatever cookware your wife brings is her business but she will find that aluminum or stainless steel utensils are more practical on humid Midway than other metals.

The linens you bring should be sturdy, making it necessary to use discretion in bringing valuable tablecloths. Your wife will find that her grandmother's Irish linen will be the worse for wear after a few washings in Midway's water.

Your wife will find it is nice to have a washing machine at home although she can get along without it (more on this subject later). She will, of course, need an iron. If it makes any difference in your plans, you might bear in mind that Midway's water is not particularly easy on automatic washers and that repair facilities are not available.

Community laundry facilities are in all housing areas (one wringer washer for four families) and there are washers and dryers in all senior officers' quarters.

About one-fifth of the enlisted quarters also have washers and dryers. Unfortunately, however, you won't know until you get there whether or not you have lucked out.

Bring your own record player, radios and TV sets because they aren't a part of the furniture in government housing.

Some of the above items can be brought with you as express baggage—at least whatever you will need immediately after your arrival. Ask your supply officer about the weight you can send as express baggage.

You needn't worry about weighing your express baggage with some items because a hospitality kit will be provided when you arrive and will contain the essentials as far as

pots, pans, dishes and bedding are concerned for use until your household goods arrive.

The only kind of clothes you will need are the washable variety. Pack plenty of bathing suits, shorts, halters, rompers, dungarees, lightweight suits and sweaters, if you have them. If you don't, you can buy them at the Navy Exchange.

Pedal pushers and bermuda shorts are also handy items to have since bicycle riding is the principal means of transportation. Raincoats are a necessity but can be bought in the Exchange if you don't bring one along.

The Navy exchange stocks children's "go aheads" and one line of basic shoes for men, women and children but the styles are limited. Clothing demands aren't heavy, however. The boys wear slacks, denims and sports or aloha shirts while the women and girls prefer simple skirts and blouses.

Men, while they are off duty, usually wear aloha shirts and casual slacks—all washable. Uniform items for officers and chiefs should include at least one set of blues (bravo), whites and service dress khakis for inspection purposes. Also bring along a service raincoat. Aviation greens are not worn. Tropical and tropical long uniforms are authorized for summer wear.

Enlisted men below E-7 will need whites, blues and dungarees. Tropical white long uniforms are authorized for summer wear.

As far as services are concerned on Midway, you will hardly know you left home. There is a slight difference but the pace of life on Midway is different too. Midway is serviced for air transportation and mail by MATS which operates one turn-around flight a week from Honolulu.

Complete laundry service is provided for military personnel. Dry-cleaning facilities are available to everyone on a four- to five-day schedule. There are times, however, when the personnel at the dry-cleaning plant aren't as experienced as might be desired.

There is an abundance of food in the commissary which stocks three or four brands of packaged and canned foods. A variety of fresh fruits and vegetables are available from Hawaii.

The Navy Exchange carries the standard line of merchandise found

QUIZ AWEIGH

In recent years national interest in oceanography has been on the upswing, and the U. S. Government presently spends millions of dollars each year to further the science. Because a major share of the work in this field is done by or in connection with the Navy, it's a subject of interest to most Navymen. How much do you know?

1. The deepest known spot in the world is approximately 200 miles south of Guam, in the Pacific Marianas Trench, where soundings have recorded a depth of 36,019 feet. The deepest depression in the Atlantic is the:

- (a) Hudson Submarine Canyon.
- (b) Puerto Rico Trench.
- (c) Romance Trench.



2. In the sea, pressure increases with depth. A general rule of thumb for finding pressure (pounds per square inch) at any given depth is to multiply the number of feet beneath the surface by:

- (a) .44
- (b) 1.44
- (c) .17

3. Sound waves travel faster through:

- (a) Warm water.
- (b) Cold water.

4. Ocean areas near the poles are greener than those near the equator. The green is caused by _____.

5. Doldrums are sections of the ocean marked by alternate calms, squalls and light intermittent winds. They are most common:

- (a) In the Sargasso Sea.
- (b) Near the equator in the Pacific.
- (c) Near the equator in both the Pacific and Atlantic.



6. This question isn't on oceanography, but we'll throw it in as a bonus. Enterprise, Long Beach and Bainbridge were the first surface ships to circumnavigate the earth without taking on fuel.

- (a) True
- (b) False

Answers to Quiz Aweigh may be found on page 57.

THE BULLETIN BOARD

in medium-sized mainland exchanges and usually at less than U. S. prices. Imported items, for example, are duty free. There isn't much choice in some items such as women's and children's wear, especially in women's shoes.

Two brands of cosmetics are carried in stock and there usually is a good selection of household appliances. The Ship's Store operates a beauty shop with normal services provided at moderate prices. Midway residents get the Hawaiian newspapers, which are flown in.

Your children's education probably will benefit from your tour. The George Cannon School provides instruction covering the entire curricula for both grade and high school under qualified teachers. The subject matter for each class level is based on the courses of study recommended by the Chief of Naval Personnel.

If you expect to arrive immediately preceding the school year, your children would do well to bone up in the basic subjects, particularly if they are in the lower grades. School officials have found that new arrivals

All-Navy Cartoon Contest
James R. Branum, CT1, USN



"So I told the MAA, 'Give me one good reason why I can't have liberty this weekend.'"

are frequently a little behind in reading, English and arithmetic.

Parents should not withdraw their children from any school without proper transfer and, if your child is entering first grade on Midway, bring along his birth certificate.

You will be glad to find a close

tie between the home and school on Midway with school authority well supported by both parents and the command. Because there are fewer distractions than in many localities, students tend to form better study habits and, perhaps, have a greater desire to attend school.

In addition to elementary and high school, Midway also supports a nursery school and kindergarten. Children from two through four are eligible for enrollment in the nursery school and five year-olds may be enrolled in the kindergarten. The station provides a special bus to take children to and from school.

There is a fee of \$13.00 per month for one child. Additional children of the same family may be enrolled for \$6.50 per month. The nursery school children are given a light snack each morning.

Midway has a station hospital with outpatient services for all dependents. Medical facilities available on the island include an operating room, pharmacy, laboratory, delivery room, nursery, physiotherapy room, X-ray machine, eye refraction equipment and wards.

There are also limited dental facilities. It would be a good idea to have your and your dependents' teeth thoroughly checked before leaving for Midway and have any necessary work done before your departure.

There are two chaplains present—Protestant and Catholic—and a beautiful chapel. Bible classes are conducted weekly and special Christian Science and Latter Day Saints services are also held weekly.

There is a branch of the Bank of Hawaii which handles commercial, checking and savings accounts.

Midway has no telegraph or cable office but Navy facilities may be used for Class E messages. There is a fine amateur radio station available on the island which islanders find useful for contacting friends and relatives in the States and individual amateurs can operate their own stations under local regulations.

There is a station post office on the island which issues money orders and has parcel post facilities.

Midway is one station where you don't have to sweat a car. There is no private automotive transportation on the island. Everybody travels on his bicycle or by bus. You can buy a bike on the island but bring one if you have it—especially for the kids who are tricycle or bicycle age.

Household Items

Provided By The Station

Stove
All furniture for size of house and family
Refrigerator
Outdoor garbage cans
Lamps
Mattresses
Group washing machines
Deep freeze

Bring If Desired

Drapes
Clothes dryer
Curtain rods and hooks
Mattress pads
Washing machine
Sewing machine
Television set
Lawn furniture

Do Not Bring

Piano
Metal objects that can rust
Air conditioners
Furniture for storage
Automobiles (not allowed)
Window fans

Bring (If You Have)

Throw rugs
Pictures
Favorite lamps
Kitchen utensils
Pillows & bedspreads
Towels, washcloths
Glassware
Pots & pans
Toys
Fans
Record player
Bicycles
Vacuum cleaner
Windup clocks
Bric-a-brac
Silverware
Sheets, pillowcases & blankets
Linens
China
Electrical appliances
Children's furniture
Waste paper baskets
Radio, records, ironing board
Mail order catalogs

Recommended Clothing

FOR MEN AND BOYS: Bathing suits, Bermuda shorts, aloha and sport shirts, winter suit, light topcoat, rubber overshoes, beachwear and gear, light summer suits, casual slacks, sweaters, raincoat, extra pairs of new shoes.

FOR WOMEN AND GIRLS: Bathing suits, halt-

ers and play clothes, pedal pushers, light prints, (formal dress occasionally at officers' Club), summer and winter dresses, light topcoat, rubber overshoes, extra new shoes, enough underwear, beachwear and gear, informal dresses, cocktail dresses, sweaters, and blouses, raincoats, umbrella, hats.

QUIZ AWEIGH ANSWERS

1. (b) Puerto Rico Trench (depth: 30,360 feet).
 2. (a) .44.
 3. (a) Warm water.
 4. Plankton.
 5. (c) Near the equator in both the Pacific and Atlantic.
 6. (b) False. Magellan's flagship, *Vitoria*, did the same thing in 1519-1522.
- Quiz Aweigh may be found on page 55.

After you've been in Midway for awhile, you may possibly conclude it is like living in an oversized country club, for it certainly has all the facilities. Here are some of them: A five-lane bowling alley, three baseball diamonds, one well lighted handball court, tennis courts, roller skating rink, gymnasium and a well equipped hobby shop.

Special services has 60 rods and reels which can be checked out plus 19 fiber glass boats with outboard motors available after paying a one-dollar fee.

There is also a converted 63-foot AVR with facilities for fishing plus two boats for water skiing and 15 "sailfish" for sailing.

Free movies are shown daily in the air-conditioned theatre at 1300, 1800 and 2015. There is also an occasional USO show.

Those who like to compete in intramural sports will have plenty of opportunity to do so with teams representing various departments and divisions on the island. These include basketball, softball, volleyball, men's bowling, mixed bowling, and badminton.

There is even a skin diving club. If you don't have diving equipment, you can buy it after you arrive.

For the single man or temporary bachelor on Midway, there is an EM club with three bars and a pool room. On weekends and on certain weekdays, there are bingo, live shows and buffet suppers. The club has a snack bar which features steaks, fried chicken, shrimp, hamburgers, beverages and dairy products.

Radio station KMTH, an affiliate of the Armed Forces Radio Service, operates 18 hours a day on Midway and has the latest in recordings and transcriptions of popular mainland shows. There are local news broadcasts as well as world news programs via short wave from Los Angeles.

The local television station (channel 11) operates seven hours daily

from five in the afternoon until about midnight. You can watch tapes of popular stateside shows and special Armed Services shows. The Navy Exchange has TV sets for sale in case you want a new one.

Personnel stationed on Midway on 12 months' rotation may be granted 15 days' annual leave. Those who want to take their leave outside the Hawaiian area must show evidence of firm round trip transportation. Leave begins upon departure from Midway and ends when you check in on Midway.

You can take 15 days of leave in Hawaii on the stipulation that you will be in Honolulu and begin making firm reservations for your return at least seven days before your leave expires.

Men on 18 months' rotation may be granted 30 days' annual leave and can travel on a space available basis. Before they leave Midway, however, they must produce evidence that they can pay for their own and dependents' transportation as far as Hawaii if necessary.

A nutshell review of what you

All-Navy Cartoon Contest
Alfred B. Castro, SK2, USN



"Burn the toast and serve the coffee cold, please . . . I'm homesick."

should and should not bring to Midway is found on the previous page.

If you wish information on other overseas duty stations, write to: Chief of Naval Personnel (Attn: Pers G221), Washington, D. C. 20370.

WAY BACK WHEN

Midshipmen

The term "midshipmen" today refers to students attending either the U. S. Naval Academy or Naval Reserve Officer Training Corps units in various colleges and universities throughout the country. But this hasn't always been the case. Midshipmen were serving with the Navy long before the Naval Academy came into existence (10 Oct 1845).

Midshipmen served aboard ships of the Continental Navy during the American Revolution and after. But not until 27 Mar 1794 was the rank of midshipman first established. And it wasn't until a few years later

that these officers were actually called midshipmen. Their original title was warrant officer.

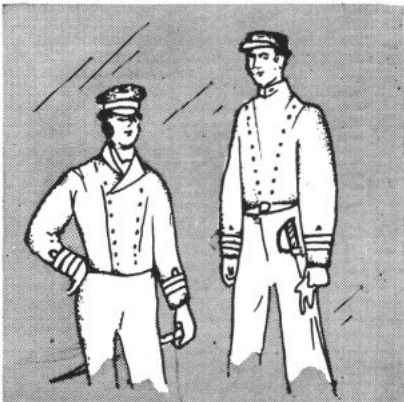
On 16 Jul 1862, Congress passed a law that placed midshipmen ninth in the active list of line officers of the Navy. It was this same act (12 Stat. 583) that gave Naval Academy students the title of midshipmen. This resulted in a situation in which some midshipmen (officers) were ninth on the active list, while others (Naval Academy students) were omitted from the list.

But this didn't last long. On 15 Jul 1870, Naval Academy students were designated cadet-midshipmen.

Twelve years later the Naval Academy students again had their title changed—they were now naval cadets. About this same time, midshipmen—including Academy students—were made 11th on the list of officers.

The Naval Appropriations Act of 3 Mar 1883 changed the title of midshipman to ensign, and discontinued the grade of midshipman from the statutory listing of officers.

The Act of 1 Jul 1902 again changed the title of Naval Academy students from naval cadet back to midshipman. Since March 1883, there has been no such rank as midshipman in the Navy, except as it refers to Naval Academy and NROTC students.



DECORATIONS & CITATIONS

DISTINGUISHED SERVICE MEDAL

"For exceptionally meritorious service to the Government of the United States in a duty of great responsibility . . ."

★ SHARP, ULYSSES S. GRANT, JR., Admiral, USN, for service as Deputy Chief of Naval Operations (Plans and Policy) from August 1960 through August 1963. As the principal advisor to the Chief of Naval Operations on matters under consideration by the Joint Chiefs of Staff, and as the principal advisor to the Secretary of the Navy and the Chief of Naval Operations on international politico-military affairs, ADM (then VADM) Sharp served with distinction, participating directly in the formulation of strategic concepts and plans for the defense of the U.S. and the establishment of security policies designed to strengthen and preserve peace throughout the world. His comprehensive grasp and understanding of military power enhanced his contribution in support of national objectives, as typified during the Cuban crisis in October 1962.

LEGION OF MERIT

"For exceptionally meritorious conduct in the performance of outstanding service to the Government of the United States . . ."

★ BLACKBURN, PAUL P., JR., Rear Admiral, USN, as the first Chief, Joint Command and Control Requirements Group, Organization of the Joint Chiefs of Staff, from August 1962 through October 1964. RADM Blackburn directly supervised the development and continuous improvement of the National Military Command System. Under his direction, the efforts of the many participating agencies of the Department of Defense were employed in the development of the Master Plan for the National Military Command System, a key document defining the complex but vital interrelationships among the National Military Command System, the service headquarters, defense agencies and other affected executive departments and agencies.

★ MCCORMICK, WILLIAM M., Rear Admiral, USN, as Assistant Director for Acquisition, Defense Intelligence Agency, from 27 Feb 1962 to 29 Jan 1964. RADM McCormick played a

leading role in the establishment, direction, development and program formulation and execution of the Directorate for Acquisition, resulting in an activity of high operational effectiveness and viability. His influence in the development of interdepartmental and interagency plans and programs has had a direct and important bearing on the management and direction of intelligence collection efforts and activities at all echelons of the Department of Defense and on the security of the United States. In the area of program review, collection effectiveness has been enhanced and extended, and significant fiscal and personnel economies have been accomplished. At a time of critical development of the Defense Intelligence Agency RADM McCormick has made an important contribution to the effectiveness of national security.

Gold Star in Lieu of Second Award

★ MUSTIN, LLOYD M., Vice Admiral, USN, for service with Joint Task Force Eight from 25 Nov 1961 to 25 May 1964. During this period, VADM (then RADM) Mustin served as Deputy Commander, Joint Task Force Eight; as commander of the naval task group of that force; from 27 Oct 1962 to 25 May 1964 as Commander, Joint Task Force Eight. He directed planning for and execution of the most complex and most successful operations in the history of U. S. nuclear testing. His judgment in implementing test objectives resulted in maximum operational effectiveness without the sacrifice of safety for test participants, and enabled the U. S. to secure an unprecedented volume of scientific data that significantly increased its nuclear weapons preparedness and defense capabilities. VADM Mustin has been instrumental in achieving a readiness-to-test status which will make possible a rapid U. S. reaction to abrogation of the Limited Nuclear Test Ban Treaty. His actions have contributed significantly to the nation's security through the establishment of an atmospheric nuclear test capability which serves as a strong deterrent to the resumption of testing by other nations.

DISTINGUISHED FLYING CROSS

"For heroism or extraordinary achievement in aerial flight . . ."

★ ALVAREZ, EVERETT, JR., Lieutenant (jg), USNR, for heroism and extraordinary achievement in aerial flight. By his skill, courage, and devotion to duty,

LTJG Alvarez upheld the highest traditions of the United States Naval Service.

★ FLATLEY, JAMES H., III, Lieutenant, USN, for service with the Flight Test Division, Naval Air Test Center, Patuxent River, Md., from 12 Oct to 22 Nov 1963. As pilot of a KC-130F cargo aircraft, LT Flatley successfully carried out the initial carrier landings and take-offs for gross weights ranging from 85,000 to 121,000 pounds aboard USS *Forrestal* (CVA 59).

NAVY AND MARINE CORPS MEDAL

"For heroic conduct not involving actual conflict with an enemy . . ."

★ ROWAN, CHARLES L., Lieutenant, USN, for heroic conduct in rescuing a man and wife from their smoke-filled home in Lexington Park, Md., on the night of 16 Jun 1964. Upon hearing cries of, "Fire! Fire!," at a nearby residence, LT Rowan raced to the scene and ascertaining that two people were trapped in an upstairs bedroom, entered the burning home through a rear entrance. Climbing the stairway to the second floor, he felt his way through the heat and smoke and succeeded in locating a fellow officer helpless on the floor. After dragging the man to safety, LT Rowan again ascended the stairway, moved through the smoke, located the man's wife, and moved her to the lower landing where neighbors took her out of the house. By his prompt, courageous and determined actions in the face of grave personal risk, LT Rowan undoubtedly saved the lives of two persons.

BRONZE STAR MEDAL

"For heroic or meritorious achievement or service during military operations . . ."

★ CORZETTE, WILLIAM W., chief equipment operator, USN, while serving with Seabee Technical Assistance Team 0904 in the Republic of Vietnam on 19 Jun 1964. When a Viet Cong ambush squad opened fire on his work detail, Corzette, although completely exposed to the enemy fire, immediately directed his men to remain covered while he returned the fire. He routed the attackers and limited casualties among his men to one wounded. The Combat Distinguishing Device is authorized.

BOOKS

THIS READING FARE WILL STAY WITH YOU

REMEMBER SHIRER's *Rise and Fall of the Third Reich*? It was a masterpiece of its kind. Another analysis, this time of Russia during World War II, has come along which most reviewers place in the same category as *Third Reich*. *Russia at War, 1941-1945*, by Alexander Werth, is just that, and a little more.

Although Werth is, of course, primarily concerned with military events, he also covers diplomatic history from the Soviet-German pact, through the ups and downs of Soviet relations with their Western allies, to the problems of victory. However, the element which gives the book its special interest is Werth's view of the impact of war on the people themselves—the ordinary Russians. He points out that no U. S. citizen can fully appreciate the Russian attitude toward World War II, that no nation can fully appreciate what it costs to lose fully 10 per cent of the entire population during a war unless it has had that experience. This attitude must, he says, form the basis of any understanding of Russia's policies, suspicions and fears. In addition to scrupulous documentation. If your ship or station library has a copy make a point to read it.

The New Meaning of Treason, by Rebecca West, is another significant offering this month. During the late 1940s Dame Rebecca in *The Meaning of Treason* examined the causes and consequences of traitors and treason through the trials of Lord Haw Haw, John Amery, Alan Nunn May, Klaus Fuchs and others. Now, some 15 years later, in addition to the original group, she explores the same subject through such examples as the Rosenbergs, Burgess and MacLean, Stephen Ward and the Profumo case. In this version, she has taken a new look at the treason of our times and has drawn conclusions with which you may not agree but which will make you think—perhaps. She has, for example, a few sharp words to say on the subject of muck-raking techniques of some security agencies. If the point is not pushed too far, she might be considered to be the conscience of our times.

The current version of treason is, of course, one of the major developments of our age—automation is another. However, treason is completely negative; the computer holds

potentialities for unlimited good or evil. *The Computer Age* by Gilbert Burck and the editors of *Fortune* is an in-depth report on the social and economic revolution being created by the computer. Burck regards the computer as a technical innovation possibly more significant than the wheel or electric power, capable of extending the human mind to an unforeseeable degree. The authors survey its impact on human labor, its limitations, and the battle raging among the companies hoping to capture the lead. They also provide a preview of things to come—computers which can transform rough drawings into finished engineering diagrams, identify handwriting, or understand spoken English. As a result of their potentialities, computers now are capable of doing what corporate vice-presidents would regard as their responsibilities. When the computers take over, the VPs will move on to problems which today are not even questions. Come to think, *The Computer Age* will probably prove to be of more immediate interest to most readers than Russia or treason.

The titles mentioned above would appear, at first glance, to be somewhat disassociated with naval affairs (they aren't really, but let that go). The other two non-fiction selections are, however, of immediate interest to any Navyman who is interested in his environment. *Anvil of the Gods*, by Fred McClement, deals with weather conditions, mostly violent. *The Bountiful Sea*, by Seabrook Hull, deals with just that.

When you become caught in a thunderstorm, you get wet—thoroughly so. *Anvil* tells what happens when an airplane flies into, or even near,

All-Navy Cartoon Contest
William R. Maul, CT1, USN



"And now let's meet our next
contestant . . ."

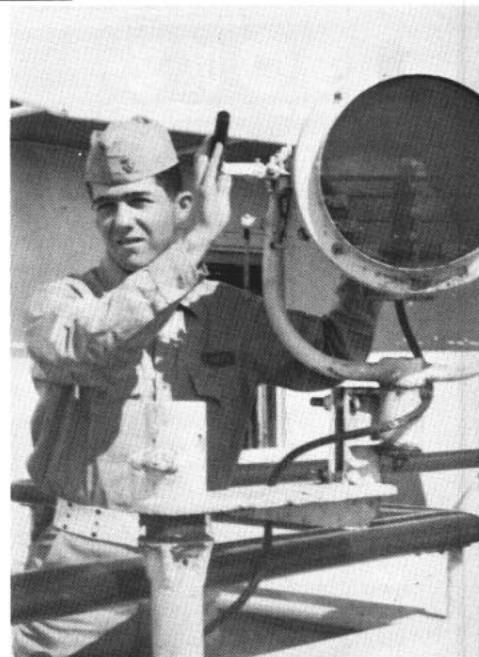
a great thunderhead. Usually the plane is wrecked. However, enough have survived to tell what happened and, in a number of true stories, McClement reconstructs accidents that tell about the nature and dangers of weather conditions. He also summarizes what we know about violent storms.

Although *Bountiful Sea* is wide-ranging and thorough, Seabrook Hull concentrates principally on a review of man's present and future mastery of the ocean. In doing so, he takes a long look at the future relief of the world's starving populations by the use of protein flour derived from so-called trash fish and considers it a fine idea. (Have you ever tasted "ocean perch" filets? Only a few years ago, these fish were considered fit only for fertilizer until some ingenious soul discovered how to fillet and freeze them. Now they can be found in any supermarket). In general, he explores the use of the oceans in terms of science, natural resources, political and legal problems and business and professional opportunities. It may be old hat to most Navyman, but he also devotes considerable space to a comparison of U. S. and Russian sub fleets.

You will notice that, generally speaking, the non-fiction selections this month are somewhat out of the ordinary. So is the fiction. *Andromeda Breakthrough*, by Fred Hoyle and John Elliot, is way out. *Andromeda*, in this case, is a most nubile female created by formula by means of a computer. The hero, if such is the term, has his doubts about all this but, by means of kidnapping, dangers infinite and ad lib, and unspeakable menaces from distant planets, he becomes convinced.

Such pleasant nonsense makes piracy, shanghaiing, flogging and smuggling seem almost prosaic. To enable your pulses to return to normal, you might try *The Edge of Piracy*, by Donald Barr Chidsey. It has the usual quota of sea fights, sailing, manly heroes and willing as well as beautiful maidens.

Love Lies Bleeding, by Peter Viertel, is somewhat more serious. It's the story of an aging bullfighter who has no need to fight for financial reasons, but does so because he feels that he must. At the same time, he is being pushed (professionally) by the bright, aggressive, up-and-coming youngster. You know how it will all end, but Viertel draws his characters so well that you really care.



SHIP SHAPE—Maine Maritime Academy midshipmen stand formation. Rt: Cadet mans signal light on training ship.

Visit to a Maritime

THE MARITIME strength of a nation is determined not only by its naval forces but by its merchant marine. Carrying thousands of passengers and cargo over the ocean highway (more than 98 per cent of the world's commerce is carried by ships), the merchant marine obviously plays an essential role both in a healthy national economy and a national defense organization.

It is obvious also that this coun-

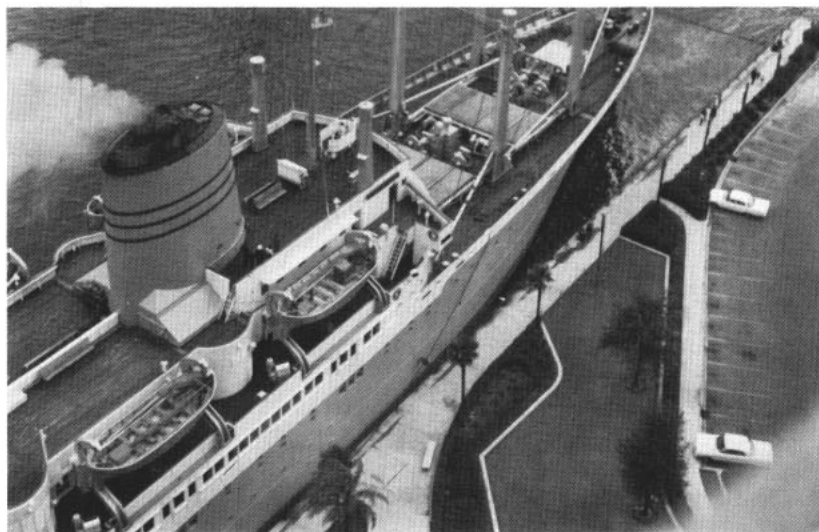
try needs to provide a continuing source of officers to serve in the merchant marine. Most Navymen are acquainted with King's Point, more formally known as the U.S. Merchant Marine Academy on Long Island, N.Y. It is maintained by the Maritime Administration.

Less familiar to most of us are the five maritime academies which are maintained by the states of California, Massachusetts, New York,

Texas and Maine. Their job also is to provide a source of officer strength for the merchant marine. In addition to their state support, the Maritime Administration, under the Department of Commerce, provides each state academy with an annual grant of \$75,000, the loan of a training vessel, the maintenance and repair of the vessels, and a student allowance of \$600 each to provide for uniforms, textbooks and subsistence.

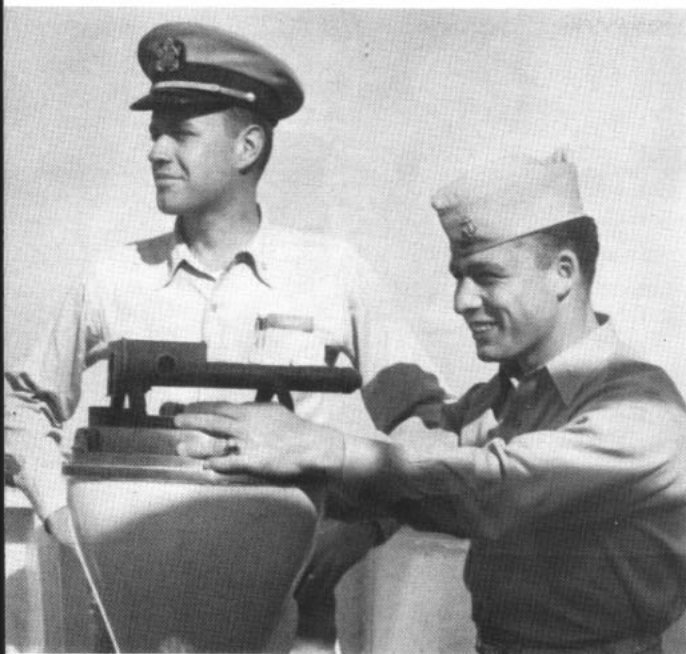
ALL HANDS has previously told the story of King's Point. Now let's take a look at one of the state academies. Each of them is manned by well-trained officers possessing a good background and understanding of both maritime and naval procedures. As a collateral benefit to the U.S. Navy, the maritime academies also help to supply officers both in the Naval Reserve and the active duty Navy.

SCHOOL 'HOUSE'—Training ship *State of Maine* arrives in Jacksonville, manned by maritime academy cadets.



FOR A REPRESENTATIVE sample of life at a maritime academy, we'll take a look at the one which, for the last two decades, has been located in the historic town of Castine, on Eastern Penobscot Bay, along the rock-ribbed coast of Maine. Its full name is Maine Maritime Academy.

Many of the graduates of this institution have close ties with the Navy, having been commissioned in



CADETS PRACTICE piloting on bridge of their ship.

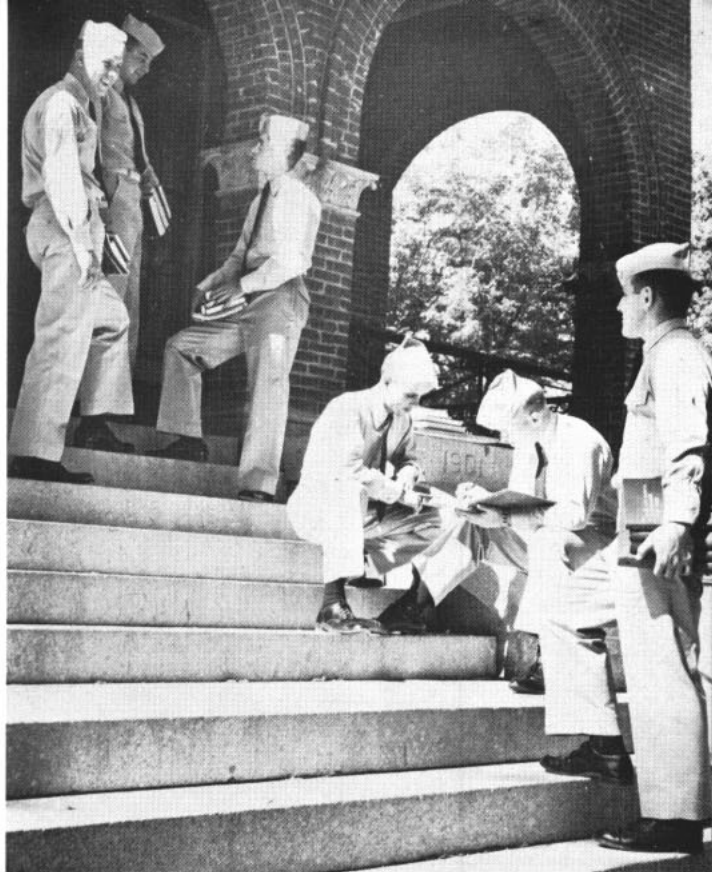
Academy

the United States Naval Reserve. A survey of Maine graduates indicated the following officers are now serving or have recently served in various assignments with naval organizations:

- Several past or current commanding officers of destroyers.
- the CO of the submarine USS *Grayback* (SSG 574).
- The commander of Submarine Division 121.
- Twenty officers flying jets and other naval aircraft.
- A recent recipient of a Bronze Star for outstanding service in Vietnam.
- A member of an underwater demolition team and astronaut recovery team in the Pacific.
- A Navy test pilot.
- The commanding officer of the Navy destroyer that halted the first Russian tanker during the Cuban crisis.
- Graduates serving in the Navy's nuclear power and hydrofoil programs.
- Officers both in Arctic and Antarctic expeditions.

THE ACADEMY was established in 1941 and Maine graduates have been awarded commissions since 1943. Despite the Academy's comparative youth, two of its graduates have been promoted to captain.

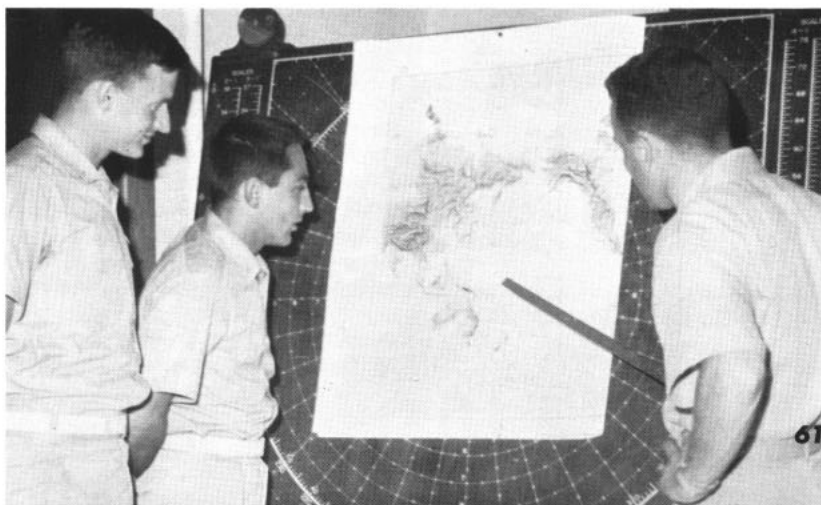
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BOOK LEARNING—Midshipmen chat on steps at Academy. Below: Naval Reservists receive rifle instructions.



THAT'S THE SPOT—Navy instructor pinpoints action during lecture in course on WW II naval history.





OVER THE SIDE—Students learn the ropes of small boat seamanship as they lower lifeboats from *State of Maine*.

Maine Maritime Academy is administered along Navy lines, with its faculty composed of officers from the Navy and Merchant Marine. Acting Superintendent is Captain Kelvin L. Nutting, USN (Ret.), U. S. Naval Academy class of 1930. CAPT Nutting, also holder of a master's degree in education, came to the Academy in 1960 as a mathematics instructor,

WHEEL GOOD—Maritime Academy student gets firsthand taste of life at sea as he takes wheel while on cruise.



later was named executive officer, and became acting superintendent last spring.

A Naval Science department, composed of three officers and three chief petty officers, administers the naval program. Courses taught include naval orientation, naval history, naval weapons, naval engineering, navigation, naval operations, naval leadership, and military law. Current head of the department is a Navy officer, Lieutenant Commander Charles M. Dallas, USN, himself a graduate of Massachusetts Maritime Academy, and holder of a Merchant Marine Chief Engineer's license.

THE FOUR-YEAR program at Maine Maritime, which includes winter training cruises to Europe, South America and the Caribbean, qualifies cadets for bachelor of science degrees and third officer licenses in the Merchant Marine, and enables them to apply for Naval Reserve commissions.

A vigorous physical expansion program is underway at the academy, with enrollment approximately 500 men, a new record.

Recently completed is a handsome \$430,000 addition containing a gymnasium, auditorium, cargo-handling classroom and special exercise facilities. Also new is a 100-man dormitory complex, of striking redwood, housing the senior class. A new structure on the waterfront is Andrews Marine Engineering



WHICH WAY—LCDR A. R. Philbrick, USN, nautical science instructor, passes the word on workings of gyrocompass.

Laboratory, a \$166,000 project containing the only nuclear propulsion center in northern New England.

Other buildings under construction are a new dining hall to seat 500; a new administration building; a 30,000-volume library; and additional waterfront training aids.

Moored in Castine Harbor is the 10,000-ton steamship *State of Maine*, used on training cruises each winter, and as a "floating laboratory" during noncruise months. *Maine* is the former luxury liner *Ancon* and served as a command and communication ship during World War II.

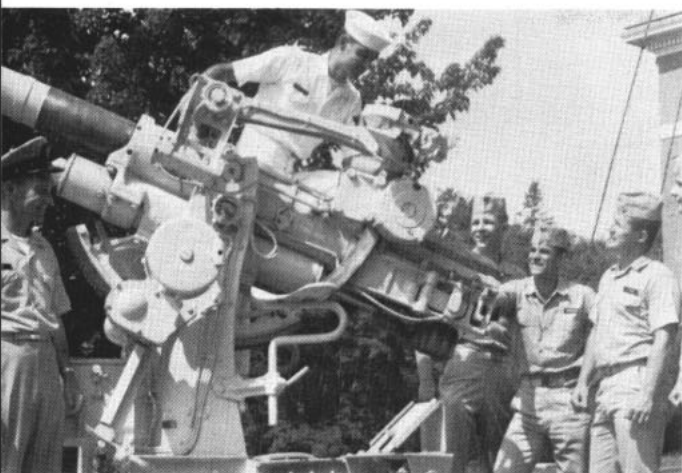
Maine was press ship at the Japanese surrender in Tokyo Bay in 1945.

In 1963 *Maine* cruised 12,000 miles to the Caribbean, Canal Zone and West Coast of the United States. Academy cadets perform every job aboard ship, from bridge to engine room, learning by doing. In 1964 two cruises to the Caribbean were made, with half the student body on board for each voyage. Guests were 40 cadets from the newly established Texas Maritime Academy.

In 1965 it is tentatively planned to cruise the Mediterranean.

Long hours of hard work, watchstanding in all kinds of weather, and study assignments in between characterize life at sea in *State of Maine* during annual cruises.

Maine's cadet-crewmembers receive rigorous practical training in nautical science and marine engineering to qualify as licensed Merchant Marine and Naval Reserve officers, but in their off-hours there is still time for



GUN TALK—Naval instructors explain the nomenclature of a 3-inch/50 deck gun on campus of Maritime Academy.

a daily sunbath, an evening movie or other recreational activity.

AS THEY LEARN—under guidance of 30 officer-instructors—cadets take on more and more responsibility, until, as seniors, they operate the twin-turbine engineering plant, developing 9000 horsepower, and take over navigation and piloting duties on the bridge.

Port visits are occasions for relaxation, with half the crew granted shore liberty each day. Tours of military and historic points of interest are arranged, dancing parties on board ship or ashore are scheduled, the basketball squad issues challenges to local teams, and cadets set about making new friends in exotic lands.

IN ITS THIRD career, after tours as a luxury liner and man-of-war, the training sloop *State of Maine* continues a lively existence.

She is a survivor of both the European and Pacific naval campaigns of World War II, participating in the invasions of North Africa, Sicily, Salerno and Normandy, and later in the bloody action at Okinawa.

Built in 1938, she had a civilian career of only four years, which ended on 11 Jan 1942, when U. S. Navy crews began preparing her for war duty. Gun mounts appeared on her shuffleboard courts; her swimming pool was drained and filled with storage batteries; and radar and CIC equipment replaced the smart furniture in her public rooms. She survived many close shaves.

Returning to civilian service in 1946, she sailed a regular schedule

until 1961, when she was turned over to the U. S. Maritime Administration. Formal transfer to the Marine Maritime Academy took place on 29 Jun 1962.

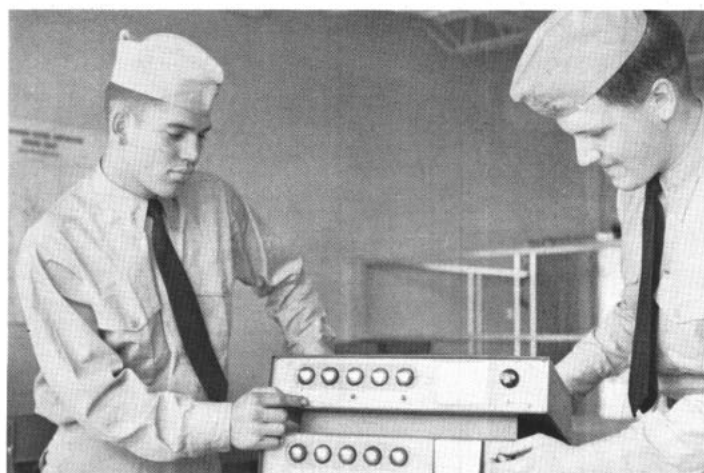
The training ship is an excellent seagoing school for the cadets, providing a full course of on-the-job instruction to supplement their academic studies. The ship is 493 feet long, with a beam of 64 feet, and will cruise at 14 knots. She is a twin screw ship, powered by a pair of turbines of 9100 horsepower, and two boilers which deliver steam at 475 pounds per square inch.

THE ACADEMIC YEAR at Maine Maritime Academy is 11 months in length, with heavy stress on laboratory work and practical projects in marine engineering. But there is still time for a wide open program of

extracurricular activity at the school.

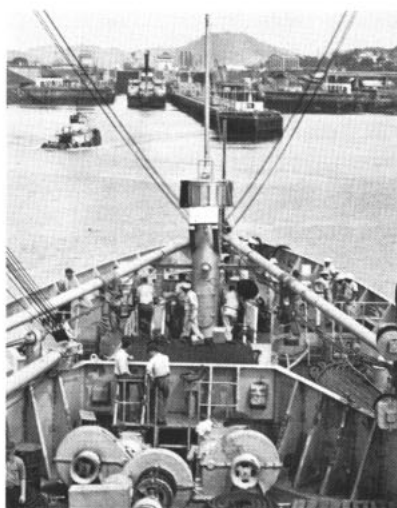
Maine fields varsity teams in football, baseball, basketball, rowing, sailing, golf and cross-country. A 40-piece military band adds color to daily formations and appears, with a crack drill squad, at public events throughout Maine. Students publish a newspaper and yearbook, operate a photo lab and radio station, and conduct a busy social program.

High school graduates, from all states, are eligible for appointments to the nation's Merchant Marine academies. If there's a member of your family who's interested and eligible, he can obtain more information by writing to the Superintendent of the Academy in which he is interested. This is one of the lesser known paths by which he may reach a career in the active Navy or the Naval Reserve.



ATOMIC TOO—Cadets check instruments in nuclear power lab while preparing for career in atomic engineering.

ON DECK—Maine Maritime cadets muster on ship's boat deck as they enter port while on annual training cruise.



TAFFRAIL TALK

IF YOU THINK the front-of-the-book piece by Jon Franklin about possible new developments in the Navy was way out in left field, you should see the stuff we *didn't* use.

In our exploration through possible source material we encountered, for example, an absolutely serious discussion by a large, presumably hard-headed corporation on the possibilities of an anti-gravity machine.

Says the author at one point: "All these (science-fiction) stories deal with the use of some anti-gravitational force. Other science-fiction stories have included the airplane, the telephone, television, picturephone, spaceships, hovercraft, robots, submarines, electric lights and, many other devices that have all come into general use."

He goes on to quote George Gamow in the *Scientific American*, March 1961, as asking: "Why is such an invention impossible? If one can shield electric and magnetic forces, why not gravity?"

Here's something to work on during your spare time in the hobby shop, and again we quote: "Purely in theory, a machine can be built that will exert a gravitation-like force in any direction, on any ordinary mass, such as a person. If this force were generated in an upward direction, the earth's gravitational field would be counteracted."

One minor problem bothers us—what sort of rating insignia would be adopted for an anti-gravity technician?

★ ★ ★

Meanwhile, back at the hard-headed corporation, they are still struggling with another basic problem—just what *is* gravity?

They know the nature of another of its problems, but the results leave them in a state of shock, it would appear. They've been burning their fingers with cryogenics, the investigation and application of natural phenomena that occur at extremely low temperatures—temperatures approaching absolute zero.

Because extreme cold causes atoms to cut down their mad pace to a slow walk, materials—especially metals—behave most strangely under these circumstances. They lose many of their more familiar properties and adopt new ones. A number of such materials for example, lose their resistance to electric conductivity, and a current introduced into a circuit of this material will circulate indefinitely even after removal of the power source.

Life and death themselves behave differently. It is possible for biologists to slow and stop the operation of life mechanism without destroying it. It is felt by some to be within the realm of possibility that an animal—or human—could be placed in a deep freeze and kept there for years, then defrosted. Alive.

Kick around the possibilities of that one for a while.

★ ★ ★

There are also immediate applications of this far-out thinking. A gadget created for the use of one of our aerospace plants is a micro-balance, accurate to one-millionth of a gram. It is presumably designed to calibrate and service electrical, electronic, linear, mechanical, optical, microwave, force and mass, hydraulic, and temperature reliability control instruments.

So what was one of the first things the operators did with it? Used it to measure the weight of a girl's kiss. (It was, says the press-agent-in-charge-of-such-things, .00325 of a gram).

The All Hands Staff

The United States Navy

Guardian of our Country

The United States Navy is responsible for maintaining control of the sea and is a ready force on watch at home and overseas, capable of strong action to preserve the peace or of instant offensive action to win in war.

It is upon the maintenance of this control that our country's glorious future depends. The United States Navy exists to make it so.

We Serve with Honor

Tradition, valor and victory are the Navy's heritage from the past. To these may be added dedication, discipline and vigilance as the watchwords of the present and future. At home or on distant stations, we serve with pride, confident in the respect of our country, our shipmates, and our families. Our responsibilities sober us; our adversities strengthen us.

Service to God and Country is our special privilege. We serve with honor.

The Future of the Navy

The Navy will always employ new weapons, new techniques and greater power to protect and defend the United States on the sea, under the sea, and in the air.

Now and in the future, control of the sea gives the United States her greatest advantage for the maintenance of peace and for victory in war. Mobility, surprise, dispersal and offensive power are the keystones of the new Navy. The roots of the Navy lie in a strong belief in the future, in continued dedication to our tasks, and in reflection on our heritage from the past.

Never have our opportunities and our responsibilities been greater.

ALL HANDS The Bureau of Naval Personnel Career Publication, solicits interesting story material and photographs from individuals, ships, stations, squadrons and other sources. All material received is carefully considered for publication.

Here are a few suggestions for preparing and submitting material:

There's a good story in every job that's being performed, whether it's on a nuclear carrier, a tugboat, in the submarine service or in the Seabees. The man on the scene is best qualified to tell what's going on in his outfit. Stories about routine day-to-day jobs are probably most interesting to the rest of the Fleet. This is the only way everyone can get a look at all the different parts of the Navy.

Research helps make a good story better. By talking with people who are closely related to the subject material a writer is able to collect many additional details which add interest and understanding to a story.

Articles about new types of unclassified equipment, research projects, all types of Navy assignments and duties, academic and historical subjects, personnel on liberty or during leisure hours, and humorous and interesting feature subjects are all of interest.

Photographs are very important, and should accompany the articles if possible. However, a good story should never be held back for lack of photographs. ALL HANDS prefers clear, well-identified, 8-by-10 glossy prints, but is not restricted to use of this type. All persons in the photographs should be dressed smartly and correctly when in uniform, and be identified by full name and rate or rank when possible. Location and general descriptive information and the name of the photographer should also be given. Photographers should strive for originality, and take action pictures rather than group shots.

ALL HANDS does not use poems (except New Year's day logs), songs, stories on change of command, or editorial type articles. The writer's name and rate or rank should be included on an article. Material timed for a certain date or event must be received before the first day of the month preceding the month of intended publication.

Address material to Editor, ALL HANDS, 1809 Arlington Annex, Navy Department, Washington, D.C. 20370.

● **AT RIGHT: GOING BELOW**—The guided missile heavy cruiser USS *Cannberra* (CAG 2) nears the San Francisco-Oakland Bay bridge while making port with other First Fleet ships for a visit to the West Coast city.



A black and white photograph of a ship's deck. In the foreground, a crew member in a dark jacket and a helmet with a 'D' on it stands on the left. To the right, another crew member is visible, and further back, two more crew members wearing helmets are working. Thick ropes and a large white cylindrical object are in the lower right. A large red graphic, resembling a torn piece of paper or a sticker, is placed diagonally across the center of the image. It contains the text 'Bravo -for Safety' in white, bold, sans-serif font. The background shows the ship's structure and the sea.

**Bravo
-for
Safety**